

# SEARCH REQUEST FORM

Scientific and Technical Information Center

Requester's Full Name: DAVID BURD Examiner #: 78292 Date: 6/12/00  
 Art Unit: 3739 Phone Number 30 Serial Number: 09/706,382  
 Mail Box and Bldg/Room Location: CP2/4 Results Format Preferred (circle): PAPER DISK E-MAIL

If more than one search is submitted, please prioritize searches in order of need.

\*\*\*\*\*  
 Please provide a detailed statement of the search topic, and describe as specifically as possible the subject matter to be searched. Include the elected species or structures, keywords, synonyms, acronyms, and registry numbers, and combine with the concept or utility of the invention. Define any terms that may have a special meaning. Give examples or relevant citations, authors, etc, if known. Please attach a copy of the cover sheet, pertinent claims, and abstract.

Title of Invention: APPARATUS & METHODS FOR THE TREATMENT OF PRESBYOPIA  
USING FIBER-COUPLED LASERS  
 Inventors (please provide full names): J.T. LIN

Earliest Priority Filing Date: 11/06/2000

\*For Sequence Searches Only\* Please include all pertinent information (parent, child, divisional, or issued patent numbers) along with the appropriate serial number.

PRESBYOPIA METHODS USING LASERS

*Look for anything on this topic.*

STAFF USE ONLY		Type of Search	Vendors and cost where applicable
Searcher: <u>JS</u>	NA Sequence (#) _____	STN _____	
Searcher Phone #: <u>308-4836</u>	AA Sequence (#) _____	Dialog <u>✓</u>	
Searcher Location: <u>ENC 2700</u>	Structure (#) _____	Questel/Orbit _____	
Date Searcher Picked Up: _____	Bibliographic _____	Dr.Link _____	
Date Completed: <u>06/21/01</u>	Litigation _____	Lexis/Nexis _____	
Searcher Prep & Review Time: <u>3</u>	Fulltext _____	Sequence Systems _____	
Clerical Prep Time: _____	Patent Family _____	WWW/Internet _____	
Online Time: <u>20</u>	Other _____	Other (specify) _____	

7/7/1 (Item 1 from file: 350)  
DIALOG(R) File 350:Derwent WPIX  
(c) 2001 Derwent Info Ltd. All rts. reserv.

013661624

WPI Acc No: 2001-145836/200115

**Novel organometallic compound for optical recording, has three heteroaromatic moieties respectively bonded to carbocation, and counterion, with at least one of the aromatic moieties, bonded to metal complex moiety**

Patent Assignee: ACAD SINICA (SINI-N)

Inventor: \*LIN J T\*; THOMAS K R J; WU I

Number of Countries: 001 Number of Patents: 001

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
US 6140503	A	20001031	US 99236683	A	19990125	200115 B

Priority Applications (No Type Date): US 99236683 A 19990125

Patent Details:

Patent No	Kind	Lan Pg	Main IPC	Filing Notes
US 6140503	A	9	C07D-213/04	

Abstract (Basic): US 6140503 A

NOVELTY - A new organometallic compound has three heteroaromatic moieties respectively bonded to methyl carbocation, and a counterion. Each moiety is optionally substituted with an electron-donating group. At least one of the aromatic moieties, is bonded to a metal complex moiety, either directly or through a linker. The carbocation, aromatic moieties, metal complex moiety and linker form a conjugated system.

USE - For \*laser\* optical recording, \*laser\* printing, \*laser\* thermal writing display, infrared photography and photodynamic therapy.

ADVANTAGE - The new organometallic compound has resonance and near-IR absorbing property which depends on charge transfer activities existing between the carbocation and metal complex of the compound. The rigidity of the compound is enhanced by the presence of rigid annulated rings. The design of the compound is based on the electronically conjugated system formed between the carbocation bonded to three aromatic moieties, and electron-donating metal complex.

pp; 9 DwgNo 0/0

Derwent Class: E12; G05; L03; T03; T04; W04

International Patent Class (Main): C07D-213/04

International Patent Class (Additional): C07D-207/00; C07D-307/02; C07D-409/00

7/7/2 (Item 2 from file: 350)  
DIALOG(R) File 350:Derwent WPIX  
(c) 2001 Derwent Info Ltd. All rts. reserv.

010770705 \*\*Image available\*\*

WPI Acc No: 1996-267659/199627

**Corneal refractive surgery performing by re-shaping corneal surface - uses UV \*lasers\* and IR \*lasers\* which are focused into spot size of 0.05-2mm in dia where \*laser\* energy per pulse of 0.01-10mJ is sufficient to achieve photo-ablation threshold**

Patent Assignee: LASERSIGHT INC (LASE-N)

Inventor: LIN J; \*LIN J T\*

Number of Countries: 061 Number of Patents: 003

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
US 5520679	A	19960528	US 92985617	A	19921203	199627 B
			US 94218319	A	19940325	
WO 9730752	A1	19970828	WO 96US2663	A	19960226	199740 N
AU 9651754	A	19970910	AU 9651754	A	19960226	199802 N
			WO 96US2663	A	19960226	

Priority Applications (No Type Date): US 94218319 A 19940325; US 92985617 A 19921203; WO 96US2663 A 19960226; AU 9651754 A 19960226

Cited Patents: US 4718418; US 4729372

Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
US 5520679	A	16	A61N-005/02	CIP of application US 92985617	
WO 9730752	A1 E	49	A61N-005/02		

Designated States (National): AL AU BB BG BR CA CN CZ EE FI GE HU IS JP KP KR LK LR LT LV MG MK MN MX NO NZ PL RO SG SI SK TR TT UA UZ VN

Designated States (Regional): AT BE CH DE DK EA ES FR GB GR IE IT KE LS LU MC MW NL OA PT SD SE SZ UG

AU 9651754 A A61N-005/02 Based on patent WO 9730752

Abstract (Basic): US 5520679 A

The method involves selecting a \*laser\* having a pulsed output beam of set UV wavelength and having an energy level less than 10 mJ/pulse. A scanning mechanism is selected for scanning the selected \*laser\* output beam. The scanning mechanism includes a galvanometer type scanning mechanism for controlling the \*laser\* beam into an overlapping pattern of adjacent pulses. The \*laser\* beam is then coupled to a scanning device for scanning the \*laser\* beam over a set surface,

The method also entails focusing the scanning \*laser\* beam onto a corneal surface to a set generally fixed spot size. The centre of the scanning \*laser\* beam is aligned onto the corneal surface with a visible aiming beam. The scanning mechanism is processed to deliver the scanning \*laser\* beam in a set overlapping pattern onto a number of positions on the corneal surface to photo-ablate or photo-coagulate corneal tissue. It removes from 0.05 to 0.5 microns of corneal tissue per pulse overlapped to remove tissue to a desired depth.

USE/ADVANTAGE - In \*laser\* ophthalmic surgery. Provides compact, low cost low power \*laser\* system with computer controlled contactless process and corneal topography to perform corneal re-shaping.

Dwg.3/11

Derwent Class: P34; S05; V07; V08

International Patent Class (Main): A61N-005/02

7/7/3 (Item 3 from file: 350)

DIALOG(R) File 350:Derwent WPIX

(c) 2001 Derwent Info Ltd. All rts. reserv.

010074461 \*\*Image available\*\*

WPI Acc No: 1994-342174/199442

**Light amplification method for tunable optical parametric amplifiers and oscillators - using a birefringent nonlinear crystal and a tunable pump \*laser\* beam to provide a narrow intense output tunable over UV, IR and visible regions.**

Patent Assignee: LIGHT AGE INC (LIGH-N)

Inventor: HELLER D F; JANI M G; \*LIN J T\*; POWELL R C; WALLING J C

Number of Countries: 002 Number of Patents: 003

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
WO 9424735	A1	19941027	WO 94US4309	A	19940419	199442 B
AU 9467083	A	19941108	AU 9467083	A	19940419	199507
US 5606453	A	19970225	US 9349955	A	19930420	199714

Priority Applications (No Type Date): US 9349955 A 19930420

Cited Patents: 3.Jnl.Ref; US 4639923; US 5134622; US 5265116

Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
WO 9424735	A1	40	H01S-003/10		
AU 9467083	A		H01S-003/10	Based on patent WO 9424735	
US 5606453	A	13	H01S-003/10		

Abstract (Basic): WO 9424735 A

Method comprises orienting a birefringent crystal having nonlinear susceptibility to phase-match light, propagating a pump \*laser\* beam tunable within the phase-match range, and producing an idler beam and signal beam. In an optical parametric amplifier, the nonlinear crystal is pref. AgGaSe<sub>2</sub>, CdSe, KTP, LiIO<sub>3</sub>, LiNbO<sub>3</sub>, Ti<sub>3</sub>AsSe<sub>3</sub>, urea, beta-BaB<sub>2</sub>O<sub>4</sub>, KDP, Ag<sub>3</sub>AsS<sub>3</sub>, AgGaS<sub>2</sub>, GaSe, LiNbP<sub>3</sub>, chalcopyrite, alpha-HIO<sub>3</sub>, KBBF, Cs dihydroarsenate, L-arginine phosphate, MgO:LiNbO<sub>3</sub>, KNbO<sub>3</sub>, LiB<sub>3</sub>O<sub>5</sub>, modulated LiNbO<sub>3</sub> or a III-V semiconductor.

Pref. the nonlinear crystal is beta-Ba borate esp. cut to have a phase-match angle of 20-35 deg. at a pump wavelength of 350-500 nm. or a type II KTP crystal with a pump wavelength greater than 400 nm. The pump source is a tunable solid state \*laser\* contg. as gain material alexandrite, LiSAF, LiCAF, LSrGaF<sub>6</sub> or sapphire:Ti, which may itself be pumped by a semiconductor diode, the material may also be an organic dye soln.

USE - Method allows a narrow, intense, tunable output to be produced.

Dwg.1/6

Abstract (Equivalent): US 5606453 A

An optical parametric amplifier (OPA) comprising 1) a birefringent crystal having a second order nonlinear susceptibility different from zero oriented to phase-match incident light over some range of wavelengths, where the birefringent crystal is oriented to cause phase matching to occur along a direction that is not at 90 deg. to an optical axis, 2) an optical pumping beam comprising light of suitable intensity from a tunable \*laser\* source, the pumping beam having a wavelength selected to be within the phase-match wavelength range of the crystal and propagating along the phase-match direction in the crystal.

Dwg.2/6

Derwent Class: L03; V07; W02

International Patent Class (Main): H01S-003/10

International Patent Class (Additional): H03F-007/00

7/7/4 (Item 4 from file: 350)

DIALOG(R) File 350:Derwent WPIX

(c) 2001 Derwent Info Ltd. All rts. reserv.

009188378 \*\*Image available\*\*

WPI Acc No: 1992-315818/199238

**Multi-wavelength solid state \*laser\* - using basic pulsed solid state \*laser\* which is frequency converted by set of novel nonlinear crystals to provide coherent radiation at UV, visible and IR wavelengths**

Patent Assignee: LASERSIGHT INC (LASE-N); JTT INT INC (JTTI-N)

Inventor: \*LIN J T\*

Number of Countries: 021 Number of Patents: 011

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
US 5144630	A	19920901	US 91736931	A	19910729	199238 B
WO 9303523	A1	19930218	WO 92US6219	A	19920724	199309
CA 2074749	A	19930130	CA 2074749	A	19920728	199315
AU 9225819	A	19930302	AU 9225819	A	19920724	199326
EP 597044	A1	19940518	EP 92919772	A	19920724	199420
			WO 92US6219	A	19920724	
JP 6509445	W	19941020	WO 92US6219	A	19920724	199501
			JP 93503660	A	19920724	
AU 660049	B	19950608	AU 9225819	A	19920724	199531
EP 597044	A4	19940831	EP 92919772	A	19920000	199533
EP 597044	B1	19980121	EP 92919772	A	19920724	199808
			WO 92US6219	A	19920724	
DE 69224197	E	19980226	DE 624197	A	19920724	199814
			EP 92919772	A	19920724	
			WO 92US6219	A	19920724	
ES 2111649	T3	19980316	EP 92919772	A	19920724	199817

Priority Applications (No Type Date): US 91736931 A 19910729

Cited Patents: US 439907; US 4880996; US 5028816; US 5065046; US 5144630;

9.Jnl.Ref; EP 368512; EP 418890; US 4764930

Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
-----------	------	-----	----	----------	--------------

US 5144630	A		9	H01S-003/10	
------------	---	--	---	-------------	--

WO 9303523	A1	E	34	H01S-003/10	
------------	----	---	----	-------------	--

Designated States (National): AU BR JP KR

Designated States (Regional): AT BE CH DE DK ES FR GB GR IT LU MC NL SE

AU 9225819	A			H01S-003/10	Based on patent WO 9303523
------------	---	--	--	-------------	----------------------------

EP 597044	A1	E		H01S-003/10	Based on patent WO 9303523
-----------	----	---	--	-------------	----------------------------

Designated States (Regional): AT CH DE ES FR GB IT LI NL SE

JP 6509445	W			H01S-003/109	Based on patent WO 9303523
------------	---	--	--	--------------	----------------------------

AU 660049	B			H01S-003/10	Previous Publ. patent AU 9225819
-----------	---	--	--	-------------	----------------------------------

Based on patent WO 9303523

EP 597044	B1	E	15	H01S-003/10	Based on patent WO 9303523
-----------	----	---	----	-------------	----------------------------

Designated States (Regional): AT CH DE ES FR GB IT LI NL SE

DE 69224197	E			H01S-003/10	Based on patent EP 597044
-------------	---	--	--	-------------	---------------------------

Based on patent WO 9303523

ES 2111649	T3			H01S-003/10	Based on patent EP 597044
------------	----	--	--	-------------	---------------------------

CA 2074749	A			H01S-003/18	
------------	---	--	--	-------------	--

EP 597044	A4			H01S-003/10	
-----------	----	--	--	-------------	--

Abstract (Basic): US 5144630 A

A \*laser\* apparatus for producing a fifth harmonic generating beam of predetermined wavelength comprises: a solid state \*laser\*; a first nonlinear crystal for producing a second harmonic beam focussing optics for focussing the solid state \*laser\* beam into the first nonlinear crystal; a second nonlinear crystal positioned adjacent the first crystal for receiving a beam therefrom and producing a fourth harmonic beam; a third nonlinear crystal of beta barium borate (BBO) positioned adjacent the second nonlinear crystal for receiving a beam therefrom and producing a fifth harmonic beam of predetermined wavelength.

Pref. (i) the solid state \*laser\* is an optically pumped Nd-YAG \*laser\* with a pulse duration  $10^{-6}$  -  $10^{-19}$  secs., and a repetition rate of 1-10 power<sup>9</sup> Hz; (ii) the first nonlinear crystal is lithium triborate (LBO) operated at the non-critical phase matching (NCPM) temp. 149 deg. C; (iii) the second non-linear crystal is BBO.

Further disclosed is an integrated \*laser\* appts. for producing multiwavelength coherent energy sources, which includes computer controlled optic means for receiving a number of input beams of different frequencies and outputting one of the input beams towards a target. By using optical parametric oscillation in nonlinear crystals the \*laser\* system may also produce tunable wavelengths.

USE/ADVANTAGE - Novel multiwavelength solid state \*laser\* apparatus in which the generated coherent radiations at U.V., visible and I.R. wavelengths are selected by frequency converters for multiple industrial and surgical applications. Particularly useful for ophthalmic surgery.

Dwg.1/5

Abstract (Equivalent): EP 597044 B

A \*laser\* apparatus for producing a fifth harmonic generating beam of predetermined wavelength comprises: a solid state \*laser\*; a first nonlinear crystal for producing a second harmonic beam focussing optics for focussing the solid state \*laser\* beam into the first nonlinear crystal; a second nonlinear crystal positioned adjacent the first crystal for receiving a beam therefrom and producing a fourth harmonic beam; a third nonlinear crystal of beta barium borate (BBO) positioned adjacent the second nonlinear crystal for receiving a beam therefrom and producing a fifth harmonic beam of predetermined wavelength.

Pref. (i) the solid state \*laser\* is an optically pumped Nd-YAG \*laser\* with a pulse duration  $10^{-6}$  -  $10^{-19}$  secs., and a repetition rate of 1-10 power<sup>9</sup> Hz; (ii) the first nonlinear crystal is lithium triborate (LBO) operated at the non-critical phase matching (NCPM) temp. 149 deg. C; (iii) the second non-linear crystal is BBO.

Further disclosed is an integrated \*laser\* appts. for producing

multiwavelength coherent energy sources, which includes computer controlled optic means for receiving a number of input beams of different frequencies and outputting one of the input beams towards a target. By using optical parametric oscillation in nonlinear crystals the \*laser\* system may also produce tunable wavelengths.

USE/ADVANTAGE. - Novel multiwavelength solid state \*laser\* apparatus in which the generated coherent radiations at U.V., visible and I.R. wavelengths are selected by frequency converters for multiple industrial and surgical applications. Particularly useful for opthalmic surgery.

Dwg.0/5

Derwent Class: L03; P32; P81; V07; V08

International Patent Class (Main): H01S-003/10; H01S-003/109; H01S-003/18

International Patent Class (Additional): A61F-009/00; G02B-027/10;

G02F-001/35; G02F-001/37; G02F-001/39; H01S-003/23

?

11/7/1 (Item 1 from file: 347)  
DIALOG(R) File 347:JAPIO  
(c) 2001 JPO & JAPIO. All rts. reserv.

05872729 \*\*Image available\*\*  
CORNEA OPERATION DEVICE

PUB. NO.: 10-155829 [JP 10155829 A]  
PUBLISHED: June 16, 1998 (19980616)  
INVENTOR(s): AMANO MASANORI  
MAKINO HIROKATSU  
APPLICANT(s): NIDEK CO LTD [423885] (A Japanese Company or Corporation), JP  
(Japan)  
APPL. NO.: 08-334592 [JP 96334592]  
FILED: November 29, 1996 (19961129)

#### ABSTRACT

PROBLEM TO BE SOLVED: To facilitate \*presbyopia\* correction by placing a near sight use aperture at a prescribed position, operating a \*laser\* beam and a hydropia correction optical system, performing ablation so as to provide a cornea with double focus es and correcting the \*presbyopia\*.

SOLUTION: The cornea of a patient eye is fixed to a prescribed position and a controller 20 decides an ablation area and a shape based on data inputted before hand from a data input device 21. In the case of hyderopia correction, the center of a circular aperture 7 is matches with an optical axis L and the opening diameter is matched with the ablation area. A mirror 3 is moved, the \*laser\* beam is shifted to the optical axis L, an image rotor 5 is rotated and ablation is piled up. Then, \*laser\* irradiation time to the shifted position of a beam center is changed and the ablation is performed in a convex lens shape. The refractive power of an are near a pupil edge required for the \*presbyopia\* correction is enlarged and the double focuses are provided. Thus, the \*presbyopia\* is corrected.

11/7/2 (Item 2 from file: 347)  
DIALOG(R) File 347:JAPIO  
(c) 2001 JPO & JAPIO. All rts. reserv.

05409260  
\*PRESBYOPIA\* MEDICAL TREATMENT SYSTEM

PUB. NO.: 09-024060 [JP 9024060 A]  
PUBLISHED: January 28, 1997 (19970128)  
INVENTOR(s): RUISU ANTONIO RUIZU  
APPLICANT(s): RUISU ANTONIO RUIZU [000000] (An Individual), CO (Columbia)  
APPL. NO.: 07-169438 [JP 95169438]  
FILED: July 05, 1995 (19950705)

11/7/3 (Item 1 from file: 350)  
DIALOG(R) File 350:Derwent WPIX  
(c) 2001 Derwent Info Ltd. All rts. reserv.

013627019  
WPI Acc No: 2001-111227/200112

Method for correcting vision in the cases of \*presbyopia\*  
Patent Assignee: NOVYI VZGLYAD MED OPHTHALMOLOGY CENTRE (NOVY-R)  
Inventor: KURENKOV V V; POLUNIN G S  
Number of Countries: 001 Number of Patents: 001  
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
RU 2158121	C2	20001027	RU 98116256	A	19980825	200112 B

Priority Applications (No Type Date): RU 98116256 A 19980825  
Patent Details:

Patent No Kind Lan Pg Main IPC Filing Notes  
RU 2158121 C2 A61F-009/013

Abstract (Basic): RU 2158121 C2

NOVELTY - Method involves applying photorefractive type keratectomy with excimer \*laser\* used. Before applying photorefractive type keratectomy, it is to be determined, which patient eye is the sighting one. Contact lens adjusting vision function to emmetropia state is set on the sighting eye. Contact lens adjusting vision function to 1.5-2.0 D myopia is set on the other eye. No vision discomfort being observed, photorefractive type keratectomy is carried out. First of all, photorefractive type keratectomy is carried out on the eye not being the sighting one. Correction is carried out to achieve 1.5-2.0 D myopia. Complete epithelialization taking place, sighting eye photorefractive type keratectomy is carried out to reach emmetropia state.

USE - Medicine.

ADVANTAGE - High quality of long distance vision with the sighting eye and short distance vision with the other eye.

pp; 0 DwgNo 0/0

Derwent Class: D22; P32

International Patent Class (Main): A61F-009/013

11/7/4 (Item 2 from file: 350)  
DIALOG(R) File 350:Derwent WPIX  
(c) 2001 Derwent Info Ltd. All rts. reserv.

013215453 \*\*Image available\*\*

WPI Acc No: 2000-387327/200033

**\*Presbyopia\* corrective surgical system using a \*laser\* to resculpture the corneal stroma following flap formation with an annular \*presbyopic\* correction contour based on a predetermine profile with reduced post operative recovery time**

Patent Assignee: BEARER G F (BEAR-I); RUIZ L A (RUIZ-I)

Inventor: BEARER G F; RUIZ L A

Number of Countries: 086 Number of Patents: 002

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
WO 200027324	A1	20000518	WO 99US26242	A	19991108	200033 B
AU 200037887	A	20000529	AU 200037887	A	19991108	200041

Priority Applications (No Type Date): US 98186884 A 19981106

Patent Details:

Patent No Kind Lan Pg Main IPC Filing Notes

WO 200027324 A1 E 39 A61F-007/00

Designated States (National): AE AL AM AT AU AZ BA BB BG BR BY CA CH CN CU CZ DE DK EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MD MG MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT UA UG UZ VN YU ZA ZW

Designated States (Regional): AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW NL OA PT SD SE SL SZ TZ UG ZW

AU 200037887 A A61F-007/00 Based on patent WO 200027324

Abstract (Basic): WO 200027324 A1

NOVELTY - An automatic corneal shaper is used with a corneal flap being formed to expose the corneal stroma. A controllable excimer \*laser\* accurately allows an ablation pulse such that an annular ablation can be made on the stroma with a \*presbyopic\* corrected external diameter based on a predetermined profile.

DETAILED DESCRIPTION - An excimer \*laser\* (200) directs a \*laser\* beam via a mirror (M1) into an integration module (202) for refinement. The refined beam is directed by a mirror (M2) to a beam shaping module (204) which is coupled to a \*presbyopia\* module (206) which provides the contour in accordance with the predetermine profile via a mirror (M3) directed at the eye (208).



USE - System is used for correcting \*presbyopia\*.  
ADVANTAGE - Post operative recovery time is reduced.  
DESCRIPTION OF DRAWING(S) - The drawing shows a schematic view of a correction system.

Excimer \*laser\* (200)  
Beam integration module (202)  
Beam shaping module (204)  
\*Presbyopia\* module (206)  
Eye (208)  
Mirrors (M1, M2, M3)  
pp; 39 DwgNo 6/7

Derwent Class: P32; S05; V08  
International Patent Class (Main): A61F-007/00

11/7/5 (Item 3 from file: 350)  
DIALOG(R) File 350:Derwent WPIX  
(c) 2001 Derwent Info Ltd. All rts. reserv.

012734589 \*\*Image available\*\*  
WPI Acc No: 1999-540706/199945

**Ablation method for correcting \*presbyopia\* using offset imaging**  
Patent Assignee: VISX INC (VISX-N)  
Inventor: GREENBERG K; LEGERTON J; MUNNERLYN C R; ODRICH M; SHIMMICK J K  
Number of Countries: 085 Number of Patents: 003  
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
WO 9944492	A1	19990910	WO 99US4764	A	19990303	199945 B
AU 9929828	A	19990920	AU 9929828	A	19990303	200007
EP 1059873	A1	20001220	EP 99911104	A	19990303	200105
			WO 99US4764	A	19990303	

Priority Applications (No Type Date): US 9876786 A 19980304  
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
WO 9944492	A1	E	45	A61B-003/10	
Designated States (National): AL AM AT AU AZ BA BB BG BR BY CA CH CN CU CZ DE DK EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MD MG MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT UA UG US UZ VN YU ZW					
Designated States (Regional): AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW NL OA PT SD SE SL SZ UG ZW					
AU 9929828	A			A61B-003/10	Based on patent WO 9944492
EP 1059873	A1	E		A61B-003/10	Based on patent WO 9944492
Designated States (Regional): AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE					

Abstract (Basic): WO 9944492 A1

NOVELTY - The ophthalmic surgery treatment is used on patients with \*presbyopia\*. A \*laser\* ablation process is applied to the anterior surface (205) of the cornea. The ablation process produces an optical surface (210) and a transition surface (215). The optical surface is shaped such that the patient has far vision when the pupil is dilated, e.g. at night. And near vision via the central area of the cornea. The positioning of the transitional zone is such that the outer boundary (212) is located across the pupil hence does not contribute to the image.

USE - \*Laser\* ablation correction of \*presbyopia\*  
ADVANTAGE - By positioning the transition zone outside the pupil, distinct near and far vision is achieved without contrast reduction due to the transition zone

DESCRIPTION OF DRAWING(S) - Cornea  
Original anterior surface (205)  
Ablated surface (210)  
transition zone (215)  
Pupil inside transition zone diameter (220)

pp; 45 DwgNo 1/15  
Derwent Class: P31; P32; P34; S05  
International Patent Class (Main): A61B-003/10  
International Patent Class (Additional): A61F-009/00; A61N-005/06

11/7/6 (Item 4 from file: 350)  
DIALOG(R) File 350:Derwent WPIX  
(c) 2001 Derwent Info Ltd. All rts. reserv.

012636970 \*\*Image available\*\*  
WPI Acc No: 1999-443074/199937

**Surgical \*presbyopia\* correcting method**

Patent Assignee: RUIZ L A (RUIZ-I)

Inventor: RUIZ L A

Number of Countries: 001 Number of Patents: 001

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
US 5928129	A	19990727	US 94268182	A	19940629	199937 B
			US 96660376	A	19960607	

Priority Applications (No Type Date): US 96660376 A 19960607; US 94268182 A 19940629

Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
US 5928129	A		10	A61N-005/06	CIP of application US 94268182 CIP of patent US 5533997

Abstract (Basic): US 5928129 A

NOVELTY - A patient is analyzed and a portion of cornea is resected and corneal stroma is exposed. The annular portion of the corneal stroma is ablated by \*laser\* beam radiation and the corneal portion is repositioned onto the eye and central corneal curvature change is induced to correct \*presbyopia\*.

DETAILED DESCRIPTION - During ablating process, the central optical zone of the corneal stroma with a diameter as small as 1 mm is left unablated. The cornea is resected such that a portion of cornea remains intact, and is folded back to expose the corneal stroma. Before ablating, the corneal stroma is dried to prevent uneven ablation. The \*laser\* beam is directed in a circular fashion until an annular ablation is formed or mask is provided over the central area of the corneal stroma. An INDEPENDENT CLAIM is also included for system for surgically correcting \*presbyopia\*.

USE - For correcting \*presbyopia\*.

ADVANTAGE - The \*presbyopia\* problem is corrected directly on the eye of the patient, such that the use of glasses is avoided and the eye of the patient will adapt the focus automatically for long and short sight. As the superficial layer of cornea remains untouched, the undesirable healing and inaccuracy in the post operative correction and regression are avoided.

DESCRIPTION OF DRAWING(S) - The figure represents ring for ablation zone.

pp; 10 DwgNo 3/3  
Derwent Class: P34; S05  
International Patent Class (Main): A61N-005/06

11/7/7 (Item 5 from file: 350)  
DIALOG(R) File 350:Derwent WPIX  
(c) 2001 Derwent Info Ltd. All rts. reserv.

011203714 \*\*Image available\*\*  
WPI Acc No: 1997-181638/199717

**System for surgically correcting \*presbyopia\* - uses pulsed \*laser\* beam to ablate annular part of corneal stroma after resecting at least part of cornea using central mask, then replaces cornea**

Patent Assignee: RUIZ L A (RUIZ-I)  
Inventor: RUIZ L A  
Number of Countries: 015 Number of Patents: 002  
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
EP 764432	A2	19970326	EP 95201763	A	19950628	199717 B
			EP 96203386	A	19950628	
EP 764432	A3	19970423	EP 95201763	A	19950628	199729
			EP 96203386	A	19950628	

Priority Applications (No Type Date): US 94268182 A 19940629  
Cited Patents: No-SR.Pub; 1.Jnl.Ref; EP 346116; EP 402250; US 4461294; US 4840175; US 4880017; US 4903695; US 5019074; WO 9401067

Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
EP 764432	A2	E	8	A61F-009/013	Div ex application EP 95201763
Designated States (Regional): AT BE CH DE DK ES FR GB GR IT LI LU NL PT SE					
EP 764432	A3			A61F-009/00	Div ex application EP 95201763

Abstract (Basic): EP 764432 A

A system for surgically correcting \*presbyopia\* has elements for resecting at least part of the cornea to expose the stroma, drying the stroma, \*laser\* ablating an annular part of the stroma, cleaning the ablated region and drying the borders of the resected cornea part after repositioning on the stroma, also pref. for marking the part to be ablated. The cornea is pref. resected using a shaper which leaves part of the cornea intact or completely removes a disc.

The \*laser\* is pref. a pulsed excimer \*laser\* and a polymethylmethacrylate mask is placed over a central area of the stroma to stop radiation and/or set the beam diameter to give annular ablation of set width and depth. Cleaning after ablation is pref. by using or brush or by irrigation.

The combination of \*laser\* and mask is also claimed.

ADVANTAGE - The treated eye can focus automatically for near and far sight without spectacles.

3A,B,C/3

Derwent Class: A96; P32

International Patent Class (Main): A61F-009/00; A61F-009/013

11/7/8 (Item 6 from file: 350)  
DIALOG(R) File 350:Derwent WPIX  
(c) 2001 Derwent Info Ltd. All rts. reserv.

010554056 \*\*Image available\*\*

WPI Acc No: 1996-051009/199606

**System for surgically performing \*presbyopia\* corrections - uses marker of area of eye to be ablated and resecting cornea to allow \*laser\* ablation of annular section of corneal stroma**

Patent Assignee: RUIZ L A (RUIZ-I)  
Inventor: RUIZ L A  
Number of Countries: 023 Number of Patents: 010  
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
EP 689811	A1	19960103	EP 95201763	A	19950628	199606 B
CA 2152856	A	19951230	CA 2152856	A	19950628	199616
ZA 9505310	A	19960424	ZA 955310	A	19950627	199622
US 5533997	A	19960709	US 94268182	A	19940629	199633
JP 9024060	A	19970128	JP 95169438	A	19950705	199714 N
CN 1118684	A	19960320	CN 95107623	A	19950629	199743
BR 9503018	A	19970923	BR 953018	A	19950629	199745 N
JP 3020049	B2	20000315	JP 95169438	A	19950705	200018 N
RU 2157679	C2	20001020	RU 95110777	A	19950627	200105
IL 114358	A	20010319	IL 114358	A	19950627	200129

Priority Applications (No Type Date): US 94268182 A 19940629; JP 95169438 A

19950705; BR 953018 A 19950629  
Cited Patents: 1.Jnl.Ref; EP 346116; EP 402250; US 4461294; US 4840175; US 4856513; US 4880017; US 4903695; US 5163934; WO 9401067

Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
EP 689811	A1	E	8	A61F-009/00	
Designated States (Regional): AT BE CH DE DK ES FR GB GR IT LI LU NL PT SE					
CA 2152856	A			A61F-009/007	
ZA 9505310	A		21	A61F-000/00	
US 5533997	A		8	A61B-017/36	
JP 9024060	A		7	A61F-009/007	
CN 1118684	A			A61F-009/013	
BR 9503018	A			A61F-009/007	
JP 3020049	B2		7	A61F-009/007	Previous Publ. patent JP 9024060
RU 2157679	C2			A61F-009/008	
IL 114358	A			A61B-017/225	

Abstract (Basic): EP 689811 A

The system for correcting \*presbyopia\* includes a \*laser\* for ablation of the cornea stroma. The patient's eye is marked in the area to be ablated. An automatic corneal shaper is used for resecting a portion of the cornea as a flap to expose the corneal stroma. The stroma is ablated in an annular form either by rotating the ablation unit or by placing a mask over the central area.

After ablation the cornea is repositioned on the eye. After exposure but before ablation the eye must be dried to ensure correct ablation. The ablated portion is thoroughly cleaned prior to reseating the cornea.

USE/ADVANTAGE - Surgical sight correction. Allows correction of long and short sight without use of glasses.

Dwg.3A/3

Abstract (Equivalent): US 5533997 A

A process for surgically correcting \*presbyopia\*, comprising:  
anesthetizing a patient;  
resecting at least a portion of a cornea of an eye of the patient to expose a corneal stroma;  
ablating an annular portion of the corneal stroma using radiation from a \*laser\* beam, wherein during the ablating step, a central optic zone of the corneal stroma is left unablated; and  
repositioning the portion of the cornea onto the eye, wherein a central corneal curvature change is induced to thereby correct \*presbyopia\* in the patient.

Dwg.2/3

Derwent Class: P31; P32; S05

International Patent Class (Main): A61B-017/225; A61B-017/36; A61F-000/00;

A61F-009/00; A61F-009/007; A61F-009/008; A61F-009/013

International Patent Class (Additional): A61B-018/20

11/7/9 (Item 7 from file: 350)

DIALOG(R)File 350:Derwent WPIX

(c) 2001 Derwent Info Ltd. All rts. reserv.

010512554 \*\*Image available\*\*

WPI Acc No: 1996-009505/199601

**Treating \*presbyopia\* and other disorders of the human eye - by surgically decreasing the equatorial dia. of the crystalline lens using e.g. \*laser\***

Patent Assignee: SCHACHAR R A (SCHA-I)

Inventor: SCHACHAR R A

Number of Countries: 001 Number of Patents: 001

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
US 5465737	A	19951114	US 92913486	A	19920715	199601 B
			US 93139756	A	19931022	

Priority Applications (No Type Date): US 95380666 A 19950130; US 92913486 A 19920715; US 93139756 A 19931022

Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
US 5465737	A		12	A61B-019/00	Cont of application US 92913486 CIP of application US 93139756 Cont of patent US 5354331

Abstract (Basic): US 5465737 A

Increasing the amplitude of accommodation, or treating \*presbyopia\*, hyperopia, primary open angle glaucoma or ocular hypertension in a human eye comprises increasing the effective working distance of the ciliary muscle by decreasing the equatorial dia. of the crystalline lens of the eye, using a surgical procedure consisting of shrinking or ablating the lens.

The surgical procedure comprises irradiation with a \*laser\*, application of ionising radiation, heating, mechanically ablating or shrinking the lens with a chemical cpd.. The \*laser\* may be a carbon dioxide, helium-neon, helium-cadmium, argon ion, krypton ion, xenon, nitrous oxide, iodine, holmium doped yttrium-aluminium garnet, etc.

USE - The amplitude of accommodation of the \*presbyopic\* eye is increased, lessening or eliminating the need for auxiliary spectacle lenses.

Dwg.1/9

Derwent Class: B05; P31

International Patent Class (Main): A61B-019/00

11/7/10 (Item 8 from file: 350)  
DIALOG(R) File 350:Derwent WPIX  
(c) 2001 Derwent Info Ltd. All rts. reserv.

010213414 \*\*Image available\*\*

WPI Acc No: 1995-114668/199515

**Correction of \*presbyopia\* using photo-refractive keratectomy - aligning \*laser\* with cornea to deliver ablative \*laser\* radiation to cornea and selectively exposing cornea to ablative radiation such that add region of different curvature and second, distinct focal point is created in cornea**

Patent Assignee: SUMMIT TECHNOLOGY INC (SUMM-N)

Inventor: KING M C; KLOPOTEK P J

Number of Countries: 001 Number of Patents: 001

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
US 5395356	A	19950307	US 9372529	A	19930604	199515 B

Priority Applications (No Type Date): US 9372529 A 19930604

Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
US 5395356	A		16	A61N-005/06	

Abstract (Basic): US 5395356 A

The methods involves creating a region of different curvature by photo-ablation of the cornea to permit the eye to accommodate for near objects. This 'add' region is preferably located near the centre of the optical zone and preferably within Bowman's membrane or the adjacent upper portions of the stroma, which lies directly below Bowman's membrane. An assembly includes a \*laser\* and a beam-shaping, is disposed between the \*laser\* and the surface of the cornea, which imposes a defined ablation profile upon the cornea.

The system can also include a feedback control for measuring the effectiveness of the \*laser\* during operation and for controlling the \*laser\*. The beam-shaper can include either an aperture e.g., a beam-shaping stop mechanism alone or in combination with a beam-shaping window, or an mask which is photodecomposable or otherwise graded in

its absorptive capacity to present a predefined profile of resistance to the \*laser\* radiation.

USE/ADVANTAGE - Correction of \*presbyopia\* by reprofiling the cornea to create at least one region having different focal point, and assisting eye in accommodating for close-viewing conditions.

Dwg.3/11

Derwent Class: P31; P34; S05

International Patent Class (Main): A61N-005/06

International Patent Class (Additional): A61B-017/00

11/7/11 (Item 9 from file: 350)

DIALOG(R) File 350:Derwent WPIX

(c) 2001 Derwent Info Ltd. All rts. reserv.

009727294 \*\*Image available\*\*

WPI Acc No: 1994-007144/199401

**Photo-refractive keratectomy appts. for corneal surgery - uses beam-shaping of irradiation from \*laser\* with feedback control based on measurement of corneal parameter compared with target parameter**

Patent Assignee: SUMMIT TECHNOLOGY INC (SUMM-N)

Inventor: KING M C; KLOPOTEK P J

Number of Countries: 021 Number of Patents: 002

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
WO 9325166	A1	19931223	WO 93US5645	A	19930610	199401 B
AU 9346337	A	19940104	AU 9346337	A	19930610	199417

Priority Applications (No Type Date): US 92896219 A 19920610

Cited Patents: EP 412789; GB 2228800; US 4729372; US 4838266; US 4941093; US 4973330

Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
-----------	------	-----	----	----------	--------------

WO 9325166	A1	E	40	A61F-009/00	
------------	----	---	----	-------------	--

Designated States (National): AU BR CA JP KR

Designated States (Regional): AT BE CH DE DK ES FR GB GR IE IT LU MC NL PT SE

AU 9346337	A		A61F-009/00	Based on patent WO 9325166
------------	---	--	-------------	----------------------------

Abstract (Basic): WO 9325166 A

The \*laser\* system (10) comprises a \*laser\* (12) which provides a radiation output (14) to a beam-shaping element (16) which in turn, imposes a defined ablation profile onto the surface of the eye (20). A portion of the \*laser\* radiation (18) from the beam-shaping element irradiates the surface of the cornea (22) to effect re-profiling.

A monitor (32) receives measurement signals (34) from the beam-shaping element and/or the cornea to generate a feedback signal to a controller (30). The controller is adjustable to cause the \*laser\* to produce pulses of light at a specific frequency and/or intensity. The beam-shaping element includes a relay telescope which delivers the beam to a dimensional controller.

ADVANTAGE - Provides correction for \*presbyopia\* by re-profiling cornea of eye.

Dwg.3/19

Derwent Class: P31; P32; S05

International Patent Class (Main): A61F-009/00

International Patent Class (Additional): A61B-017/56

11/7/12 (Item 10 from file: 350)

DIALOG(R) File 350:Derwent WPIX

(c) 2001 Derwent Info Ltd. All rts. reserv.

009148989 \*\*Image available\*\*

WPI Acc No: 1992-276428/199233

**Controlled corneal ablation method - using contact lens with concave**

**surface wetted with inert UV absorbent liquid, and feeding quartz fibre bundle terminating in decollimating matrix at lens from excimer \*laser\***

Patent Assignee: SMITH R F (SMIT-I)

Inventor: SMITH R F

Number of Countries: 001 Number of Patents: 001

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
US 5133708	A	19920728	US 88143835	A	19880114	199233 B
			US 89368667	A	19890619	

Priority Applications (No Type Date): US 89368667 A 19890619; US 88143835 A 19880114

Patent Details:

Patent No	Kind	Lan Pg	Main IPC	Filing Notes
US 5133708	A	6	A61N-005/06	CIP of application US 88143835

Abstract (Basic): US 5133708 A

The method to ablate the full surface of the cornea to achieve refractive correction involves providing a liquid which is photo-dissociated by ultraviolet radiation no more than the compound glycerin and applying the liquid to the surface of the cornea. A far ultraviolet transparent contact lens with a concave side is placed over the liquid such that the liquid completely fills the space between the outer surface of the cornea and the concave side of the contact lens. A collimated beam of far ultraviolet radiation is directed into one end of a bundle of optic fibres, which are aligned with the beam and each fibre intercepting approximately equal amounts of radiation.

The fibres are angled at the other end of the bundle by a decollimating matrix and produce a constrained radiation directed towards the cornea surface, the radiation passing through the contact lens. The constrained radiation is attenuated in proportion to the thickness of the liquid to control the radiation reaching the cornea such that the cornea is gradually ablated to match the concave surface of the contact lens.

USE/ADVANTAGE - For corneal reshaping to correct refractive errors of human eye, e.g. myopia, hyperopia, regular or irregular astigmatism and to minimise effects of \*presbyopia\*. Uses EM radiation such as uv radiation at wavelength of 193 nm. uv absorbing fluid minimises exposure of other eye tissues to radiation.

Dwg.3/3

Derwent Class: P34; S05; V07

International Patent Class (Main): A61N-005/06

11/7/13 (Item 11 from file: 350)  
DIALOG(R) File 350:Derwent WPIX  
(c) 2001 Derwent Info Ltd. All rts. reserv.

009041656 \*\*Image available\*\*

WPI Acc No: 1992-169016/199221

**\*Presbyopia\* correction equipment for corneal surfaces - uses photo ablation using masked \*laser\* beam which strikes surfaces of cornea in sickle shape located in lower area of pupil rim to remove very small uniform thickness of layers**

Patent Assignee: NIBATEC SA (NIBA-N); NIZZOLA G M (NIZZ-I)

Inventor: NIZZOLA G; NIZZOLA G M

Number of Countries: 015 Number of Patents: 005

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
EP 486447	A1	19920520	EP 91830499	A	19911113	199221 B
US 5314422	A	19940524	US 91790436	A	19911112	199420
IT 1242932	B	19940518	IT 9040147	A	19901114	199439
EP 486447	B1	19950927	EP 91830499	A	19911113	199543
DE 69113400	E	19951102	DE 613400	A	19911113	199549
			EP 91830499	A	19911113	

Priority Applications (No Type Date): IT 9040147 A 19901114

Cited Patents: EP 201231; EP 207648; US 4769033; WO 8604500

Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
-----------	------	-----	----	----------	--------------

EP 486447	A1	E	5	A61F-009/00	
-----------	----	---	---	-------------	--

Designated States (Regional): AT BE CH DE DK ES FR GB GR LI LU NL SE

US 5314422	A		5	A61N-005/06	
------------	---	--	---	-------------	--

EP 486447	B1	E	6	A61F-009/00	
-----------	----	---	---	-------------	--

Designated States (Regional): AT BE CH DE DK ES FR GB GR LI LU NL SE

DE 69113400	E			A61F-009/00	Based on patent EP 486447
-------------	---	--	--	-------------	---------------------------

IT 1242932	B			A61B-000/00	
------------	---	--	--	-------------	--

Abstract (Basic): EP 486447 A

The equipment comprises a \*laser\* beam (16) (excimer \*laser\*) which removes with each impulse a thin layer of tissue from the corneal surface, and a diaphragm or mask (1) which masks the \*laser\* beam and exposes at every impulse or application of the \*laser\* beam a predetermined surface area of the cornea. The mask has an aperture (10) corresponding to the lower pupil rim (20).

The mask comprises a structure with frame function (5), and an variable opening organ, which is geometrically defined by two reciprocally facing principal curved edges (22 and 23), which are arranged in such a way as to give the aperture a polygonal form, with an externally convex first curved edge (22), and an externally concave second curved edge (23).

ADVANTAGE - Corrects \*presbyopia\* by very simple method.

Dwg.1,2/4

Abstract (Equivalent): EP 486447 B

Equipment for the correction of \*presbyopia\* by means of modelling of the corneal surface by photo-ablation comprising: a \*laser\* capable of generating a pulsed \*laser\* beam (16) which is able to remove, with each impulse, a thin layer of tissue from the corneal surface; a mask (1) having a frame (5) and a masking organ arranged so as to mask the said \*laser\* beam (16) and to expose, at every impulse or application of said \*laser\* beam (16) a pre-established surface area of the cornea, wherein said mask (1) has an aperture (10) corresponding to the lower pupil rim (20), said aperture (10) being variable and geometrically defined by at least two principal curved edges (22) and (23) reciprocally facing and arranged in such a way as to give the said aperture (10) a form defined by a first curved edge (22) having its curve externally convex, and a second curved edge (23) having its curve externally concave.

Dwg.1/4

Abstract (Equivalent): US 5314422 A

The \*presbyopia\* correction appts. comprises a mask positioned between the \*laser\* output and the corneal surface, the mask having an aperture for allowing the \*laser\* output to pass through and the aperture having a curved edge. The curved edge is substantially similar to the curvature of the pupil.

A frame supports the mask above the corneal surface, the mask having two elements slidably mounted within the mask, each of the mask elements having a curved edge. The two mask elements are positioned within the mask so that the aperture is blocked by the mask elements except at an aperture portion defined by the two curved edges when in a facing arrangement.

Dwg.2/4

Derwent Class: P31; P32; P34; S05

International Patent Class (Main): A61B-000/00; A61F-009/00; A61N-005/06



9/3,AB/1

DIALOG(R) File 348:EUROPEAN PATENTS

(c) 2001 European Patent Office. All rts. reserv.

00585345

**MULTIWAVELENGTH SOLID STATE LASER USING FREQUENCY CONVERSION TECHNIQUES**

**Mehrwellenlangen-Festkorperlaser mit Frequenzumwandlung**

**LASER A SOLIDE A LONGUEURS D'ONDE MULTIPLES UTILISANT DES TECHNIQUES DE**

**CONVERSION DE FREQUENCE**

PATENT ASSIGNEE:

LASERSIGHT INCORPORATED, (1614840), 3043 Technology Avenue, Suite 12,  
Orlando, FL 32817, (US), (applicant designated states:  
AT;CH;DE;ES;FR;GB;IT;LI;NL;SE)

INVENTOR:

\*LIN\*, J., T., 730 Willow Run Lane, Winter Springs, FL 32708, (US)

LEGAL REPRESENTATIVE:

Finck, Dieter, Dr.Ing. et al (3631), Patentanwalte v. Funer, Ebbinghaus,  
Finck Mariahilfplatz 2 - 3, 81541 Munchen, (DE)

PATENT (CC, No, Kind, Date): EP 597044 A1 940518 (Basic)

EP 597044 A1 940831

EP 597044 B1 980121

WO 9303523 930218

APPLICATION (CC, No, Date): EP 92919772 920724; WO 92US6219 920724

PRIORITY (CC, No, Date): US 736931 910729

DESIGNATED STATES: AT; CH; DE; ES; FR; GB; IT; LI; NL; SE

INTERNATIONAL PATENT CLASS: H01S-003/10; G02F-001/37; G02F-001/39;

A61F-009/00; G02B-027/10; H01S-003/23;

NOTE:

No A-document published by EPO

LANGUAGE (Publication,Procedural,Application): English; English; English

FULLTEXT AVAILABILITY:

Available Text	Language	Update	Word Count
CLAIMS B	(English)	9804	1168
CLAIMS B	(German)	9804	1218
CLAIMS B	(French)	9804	1411
SPEC B	(English)	9804	3855

Total word count - document A 0

Total word count - document B 7652

Total word count - documents A + B 7652

?

13/3,AB/1  
DIALOG(R)File 348:EUROPEAN PATENTS  
(c) 2001 European Patent Office. All rts. reserv.

01143839

**Apparatus for Improving LASIK flap adherence**  
**Vorrichtung zur verbesserten Adhasion einer LASIK-Hornhautklappe**  
**Dispositif pour assurer l'adherence ameliore d'un clapet corneen a LASIK**  
PATENT ASSIGNEE:

Kawesch, Glenn, (2897550), 3916 Santa Nella Place, San Diego, California  
02130, (US), (Applicant designated States: all)

INVENTOR:

Kawesch, Glenn, 3916 Santa Nella Place, San Diego, California 02130, (US)

LEGAL REPRESENTATIVE:

Gemmell, Peter Alan, Dr. et al (79852), Dummett Copp, 25 The Square,  
Martlesham Heath, Ipswich, Suffolk IP5 3SL, (GB)

PATENT (CC, No, Kind, Date): EP 997122 A1 000503 (Basic)

APPLICATION (CC, No, Date): EP 99308614 991020;

PRIORITY (CC, No, Date): US 182334 981029

DESIGNATED STATES: DE; FR; GB; IT

EXTENDED DESIGNATED STATES: AL; LT; LV; MK; RO; SI

INTERNATIONAL PATENT CLASS: A61F-009/01

ABSTRACT EP 997122 A1

An apparatus for surgical vision correction comprises:  
a means for resecting at least a portion of a cornea of an eye to  
expose an inner layer of said cornea;  
a laser apparatus for ablating said exposed inner layer of said cornea  
to produce a desired corneal topography;  
a source of sterile solution for floating said resected portion of  
said cornea back into its original position on said eye;  
a source of compressed air for drying said eye, said source of  
compressed air including volume and pressure regulators to control the  
flow of said compressed air; and  
a microscope for viewing said repositioned portion of said cornea to  
ensure proper orientation and smoothness and for viewing a gutter  
substantially circumferentially surrounding said replaced portion of said  
cornea while said replaced portion is being dried in its original  
position.

ABSTRACT WORD COUNT: 143

NOTE:

Figure number on first page: 4

LANGUAGE (Publication,Procedural,Application): English; English; English

FULLTEXT AVAILABILITY:

Available Text	Language	Update	Word Count
CLAIMS A	(English)	200018	162
SPEC A	(English)	200018	3628
Total word count - document A			3790
Total word count - document B			0
Total word count - documents A + B			3790

13/3,AB/2  
DIALOG(R)File 348:EUROPEAN PATENTS  
(c) 2001 European Patent Office. All rts. reserv.

00822837

**System for surgically correcting presbyopia**  
**System zur chirurgischen Behandlung von Weitsichtigkeit**  
**Systeme destine a la chirurgie corrective de la presbytie**  
PATENT ASSIGNEE:

Ruiz, Luis Antonio, (1229921), Carrera 20 No. 85-11, Piso 4, Bogota, (CO)  
, (applicant designated states:

AT;BE;CH;DE;DK;ES;FR;GB;GR;IT;LI;LU;NL;PT;SE)

INVENTOR:

Ruiz, Luis Antonio, Carrera 20 No. 85-11, Piso 4, Bogota, (CO)  
LEGAL REPRESENTATIVE:  
Ferguson, Alexander et al (62081), Octrooibureau Vriesendorp & Gaade,  
P.O. Box 266, 2501 AW Den Haag, (NL)  
PATENT (CC, No, Kind, Date): EP 764432 A2 970326 (Basic)  
EP 764432 A3 970423  
APPLICATION (CC, No, Date): EP 96203386 950628;  
PRIORITY (CC, No, Date): US 268182 940629  
DESIGNATED STATES: AT; BE; CH; DE; DK; ES; FR; GB; GR; IT; LI; LU; NL; PT;  
SE  
RELATED PARENT NUMBER(S) - PN (AN):  
EP 689811 (EP 952017630)  
INTERNATIONAL PATENT CLASS: A61F-009/013;

ABSTRACT EP 764432 A3

A system for surgically correcting \*presbyopia\*, comprising: means for resecting at least a portion of a \*cornea\* of the eye of the patient to expose a \*corneal\* stroma; means for drying the \*corneal\* stroma after it has been exposed by the means for resecting; means for ablating an annular portion of the \*corneal\* stroma including a \*laser\*, wherein ablation takes place by irradiating the \*corneal\* stroma with radiation from the \*laser\*; means for cleaning the portion which was ablated, and means for drying the borders of the resected portion of the \*cornea\* after it is repositioned on the \*corneal\* stroma.

ABSTRACT WORD COUNT: 101

LANGUAGE (Publication,Procedural,Application): English; English; English

FULLTEXT AVAILABILITY:

Available Text	Language	Update	Word Count
CLAIMS A	(English)	EPAB97	352
SPEC A	(English)	EPAB97	2671
Total word count - document A			3023
Total word count - document B			0
Total word count - documents A + B			3023

13/3,AB/3

DIALOG(R) File 348:EUROPEAN PATENTS

(c) 2001 European Patent Office. All rts. reserv.

00731949

**Apparatus for performing presbyopia corrective surgery**

**Vorrichtung zur chirurgischen Behandlung von Weitsichtigkeit**

**Dispositif destine a la chirurgie corrective de la presbytie**

PATENT ASSIGNEE:

Ruiz, Luis Antonio, (1229921), Carrera 20 No. 85-11, Piso 4, Bogota, (CO)

, (applicant designated states:

AT;BE;CH;DE;DK;ES;FR;GB;GR;IT;LI;LU;NL;PT;SE)

INVENTOR:

Ruiz, Luis Antonio, Carrera 20 No. 85-11, Piso 4, Bogota, (CO)

LEGAL REPRESENTATIVE:

Ferguson, Alexander et al (62081), Octrooibureau Vriesendorp & Gaade,

P.O. Box 266, 2501 AW Den Haag, (NL)

PATENT (CC, No, Kind, Date): EP 689811 A1 960103 (Basic)

APPLICATION (CC, No, Date): EP 95201763 950628;

PRIORITY (CC, No, Date): US 268182 940629

DESIGNATED STATES: AT; BE; CH; DE; DK; ES; FR; GB; GR; IT; LI; LU; NL; PT;

SE

INTERNATIONAL PATENT CLASS: A61F-009/00;

ABSTRACT EP 689811 A1

A system for surgically correcting \*presbyopia\* includes means for marking a portion of an eye of the patient which is to be ablated. Further means such as an automatic \*corneal\* shaper for resecting, at least a portion of the \*cornea\* to expose the \*corneal\* stroma and means for ablating an annular portion of the \*corneal\* stroma using radiation

from a \*laser\* beam are included. After ablation, the \*cornea\* is repositioned onto the eye. The \*cornea\* may be resected by the resecting means such that a portion of the \*cornea\* remains intact, and is folded back to expose the \*corneal\* stroma. Alternatively, a complete disk of the \*cornea\* may be removed by the resecting means from the eye, to thereby expose the \*corneal\* stroma. After exposure but before ablating, the \*corneal\* stroma should be dried by drying means to prevent uneven ablation which may occur if fluids are present on the stroma. The \*laser\* beam may be directed in a circular fashion until an annular ablation is formed, or a mask may be provided over a central area of the \*corneal\* stroma. To prevent edema, the ablated portion should be cleaned by cleaning means, such as a brush and irrigating means. (see image in original document)

ABSTRACT WORD COUNT: 233

LANGUAGE (Publication,Procedural,Application): English; English; English

FULLTEXT AVAILABILITY:

Available Text	Language	Update	Word Count
CLAIMS A	(English)	EPAB96	301
SPEC A	(English)	EPAB96	2820
Total word count - document A			3121
Total word count - document B			0
Total word count - documents A + B			3121

13/3,AB/4

DIALOG(R)File 348:EUROPEAN PATENTS

(c) 2001 European Patent Office. All rts. reserv.

00497470

**Equipment for the correction of presbyopia by remodelling the corneal surface by means of photoablation.**

**Einrichtung zum Berichtigen von Alterssichtigkeit durch mittels Photoablation erzeugter Kornhautumformung.**

**Appareil a photoablation destine a la correction de presbytie par le remaniement de la surface corneenne.**

PATENT ASSIGNEE:

NIBATEC S.A., (1986810), Corso S. Gottardo 14, CH-6030 Chiasso, (CH),  
(applicant designated states: AT;BE;CH;DE;DK;ES;FR;GB;GR;LI;LU;NL;SE)

INVENTOR:

Nizzola, Guido Maria, Largo Garibaldi 32, I-41100 Modena, (IT)

LEGAL REPRESENTATIVE:

Lanzoni, Luciano (47632), BUGNION S.p.A. Via Emilia Est, 25, I-41100  
Modena, (IT)

PATENT (CC, No, Kind, Date): EP 486447 A1 920520 (Basic)  
EP 486447 B1 950927

APPLICATION (CC, No, Date): EP91830499 911113;

PRIORITY (CC, No, Date): IT 9040147 901114

DESIGNATED STATES: AT; BE; CH; DE; DK; ES; FR; GB; GR; LI; LU; NL; SE

INTERNATIONAL PATENT CLASS: A61F-009/00;

ABSTRACT EP 486447 A1

The invention relates to equipment for the correction of \*presbyopia\* by means of \*corneal\* surface modelling by photo-ablation, of the type which uses a \*laser\* beam (16) (excimer \*laser\*) which is masked with a special mask (5) in such a way as to strike surfaces (19) of the \*cornea\* (3) in a sickle-shape configuration and located in proximity to the lower area of the pupil rim (20), on which surfaces (19) a removal action of very small-thickness uniform tissue layers is effected. (see image in original document)

ABSTRACT WORD COUNT: 89

LANGUAGE (Publication,Procedural,Application): English; English; Italian

FULLTEXT AVAILABILITY:

Available Text	Language	Update	Word Count
CLAIMS A	(English)	EPABF1	311

CLAIMS B	(English)	EPAB95	302
CLAIMS B	(German)	EPAB95	292
CLAIMS B	(French)	EPAB95	326
SPEC A	(English)	EPABF1	1024
SPEC B	(English)	EPAB95	1026
Total word count	- document A		1335
Total word count	- document B		1946
Total word count	- documents A + B		3281

4/7/1 (Item 1 from file: 2)  
DIALOG(R) File 2:INSPEC  
(c) 2001 Institution of Electrical Engineers. All rts. reserv.

6225377 INSPEC Abstract Number: A1999-10-8732C-014

**Title: Biometric, optical and physical changes in the isolated human crystalline lens with age in relation to presbyopia**

Author(s): Glasser, A.; Campbell, M.C.W.

Author Affiliation: Coll. of Optometry, Houston Univ., TX, USA

Journal: Vision Research vol.39, no.11 p.1991-2015

Publisher: Elsevier,

Publication Date: June 1999 Country of Publication: UK

CODEN: VISRAM ISSN: 0042-6989

SICI: 0042-6989(199906)39:11L.1991:BOPC;1-8

Material Identity Number: V013-1999-010

U.S. Copyright Clearance Center Code: 0042-6989/99/\$20.00

Document Number: S0042-6989(98)00283-1

Language: English Document Type: Journal Paper (JP)

Treatment: Bibliography (B); Experimental (X)

**Abstract:** The biometric, optical and physical properties of 19 pairs of isolated human eye-bank lenses ranging in age from 5 to 96 years were compared. Lens focal length and spherical aberration were measured using a scanning laser apparatus, lens thickness and the lens surface curvatures were measured by digitizing the lens profiles and equivalent refractive indices were calculated for each lens using this data. The second lens from each donor was used to measure resistance to physical deformation by providing a compressive force to the lens. The lens capsule was then removed from each lens and each measurement was repeated to ascertain what role the capsule plays in determining these optical and physical characteristics. Age dependent changes in lens focal length, lens surface curvatures and lens resistance to physical deformation are described. Isolated lens focal length was found to be significantly linearly correlated with both the anterior and posterior surface curvatures. No age dependent change in equivalent refractive index of the isolated lens was found. Although decapsulating human lenses causes similar changes in focal length to that which the authors have shown to occur when human lenses are mechanically stretched into an unaccommodated state, the effects are due to nonsystematic changes in lens curvatures. These studies reinforce the conclusion that lens hardening must be considered as an important factor in the development of **presbyopia**, that age changes in the human lens are not limited to the loss of accommodation that characterizes **presbyopia** but that the lens optical and physical properties change substantially with age in a complex manner. (62 Refs)

Subfile: A

Copyright 1999, IEE

4/7/2 (Item 2 from file: 2)  
DIALOG(R) File 2:INSPEC  
(c) 2001 Institution of Electrical Engineers. All rts. reserv.

5785763 INSPEC Abstract Number: A9803-8732C-004

**Title: Presbyopia and the optical changes in the human crystalline lens with age**

Author(s): Glassner, A.; Campbell, M.C.W.

Author Affiliation: Sch. of Optometry, Waterloo Univ., Ont., Canada

Journal: Vision Research vol.38, no.2 p.209-29

Publisher: Elsevier,

Publication Date: Jan. 1998 Country of Publication: UK

CODEN: VISRAM ISSN: 0042-6989

SICI: 0042-6989(199801)38:2L.209:POCH;1-L

Material Identity Number: V013-97025

U.S. Copyright Clearance Center Code: 0042-6989/98/\$19.00+0.00

Document Number: S0042-6989(97)00102-8

Language: English Document Type: Journal Paper (JP)

Treatment: Bibliography (B); Experimental (X)

Abstract: Lenses from 27 human eyes ranging in age from 10 to 87 years were used to determine how accommodation and age affect the optical properties of the lens. A scanning **laser** technique was used to measure focal length and spherical aberration of the lenses, while the lenses were subjected to stretching forces applied through the ciliary body/zonular complex. The focal length of all unstretched lenses increased linearly with increasing age. Younger lenses were able to undergo significant changes in focal length with stretching whereas lenses older than 60 years of age showed no changes in focal length with stretching. These data provide additional evidence for predominantly lens-based theories of **presbyopia**. Further, these results show that there are substantial optical changes in the human lens with increasing age and during accommodation, since both the magnitude and the sign of the spherical aberration change with age and stretching. These results show that the optical properties of the older **presbyopic** lens are quite different from the younger, accommodated lens.

(78 Refs)

Subfile: A

Copyright 1997, IEE

4/7/3 (Item 3 from file: 2)

DIALOG(R) File 2:INSPEC

(c) 2001 Institution of Electrical Engineers. All rts. reserv.

5150420 INSPEC Abstract Number: A9603-8770G-012, B9602-7520C-013

**Title: How predictable are the results of excimer laser photorefractive keratectomy?**

Author(s): Grosvenor, T.

Author Affiliation: Sch. of Optometry, Indiana Univ., Bloomington, IN, USA

Journal: Optometry and Vision Science vol.72, no.10 p.698-712

Publisher: Williams & Wilkins for American Acad. Optometry,

Publication Date: Oct. 1995 Country of Publication: USA

CODEN: OVSCET ISSN: 1040-5488

SICI: 1040-5488(199510)72:10L:698:PREL;1-G

Material Identity Number: M887-95012

U.S. Copyright Clearance Center Code: 1040-5488/95/7210-0698\$03.00/0

Language: English Document Type: Journal Paper (JP)

Treatment: Bibliography (B); General, Review (G); Experimental (X)

Abstract: At the close of 1994, the AOA News reported that at least 14 companies were preparing to market equipment for excimer **laser** photorefractive keratectomy (PRK). More than a dozen PRK centers had been formed for the purpose of recruiting optometrists to co-manage PRK patients. Because the surgery is a "no-touch" computer-driven procedure whose duration is measured in seconds, the preoperative and postoperative care of PRK patients will assume major importance. Optometrists who will be asked to take part in the management of PRK patients must be able to counsel patients on matters such as the predictability of the procedure in terms of postoperative refractive error and visual acuity, as well as the possibility of unintended consequences such as difficulty in night driving. Information currently available, mainly as a result of studies conducted in other countries, shows that the results of PRK are highly predictable for preoperative myopia up to about -3.00 D and somewhat less predictable for myopia between -3.00 and -6.00 D, whereas for myopia greater than -6.00 D the probability of achieving a full correction decreases rapidly with increasing amounts of myopia. As compared to radial keratotomy (RK) in which the postoperative refractive error drifts relentlessly in the hyperopic direction, PRK brings about an initial hyperopic shift followed by regression leading to increasing myopia. Researchers disagree on the cause of the postoperative hyperopic shift and regression, and on the value of various methods of controlling regression including the use of wider and deeper ablation profiles and the postoperative use of corticosteroids and nonsteroid anti-inflammatory drugs. It is too early to determine whether the myopic creep in PRK will be as persistent as the hyperopic creep in RK, but it is likely that whereas **presbyopic** post-RK patients may have adequate distance vision but require corrective lenses for reading,

**presbyopic** post-RK patients may be sufficiently myopic to require lenses for distance vision but not for reading. (55 Refs)

Subfile: A B

Copyright 1996, IEE

4/7/4 (Item 4 from file: 2)

DIALOG(R) File 2:INSPEC

(c) 2001 Institution of Electrical Engineers. All rts. reserv.

04326667 INSPEC Abstract Number: A9305-8732-001

**Title:** Laser keratectomy for correction of presbyopia

**Author(s):** Bosi, L.; Recla, F.

**Author Affiliation:** Dipartimento di Fisica, Politecnico di Milan, Italy

**Journal:** Nuovo Cimento D vol.14D, ser.1, no.11 p.1179-82

**Publication Date:** Nov. 1992 **Country of Publication:** Italy

**CODEN:** NIFDAV **ISSN:** 0392-6737

**Language:** English **Document Type:** Journal Paper (JP)

**Treatment:** Theoretical (T)

**Abstract:** The authors suggest that even an elementary analysis of a traditional model (Gullstrand) for the human eye is suitable for programming correction of the **presbyopia** by **laser** keratectomy: indeed, the application of their simple calculations was successful in simulations as well as in subsequent operations in hospital. (3 Refs)

Subfile: A

4/7/5 (Item 5 from file: 2)

DIALOG(R) File 2:INSPEC

(c) 2001 Institution of Electrical Engineers. All rts. reserv.

04092417 INSPEC Abstract Number: A9207-8732C-001

**Title:** Dynamic retinoscopy and accommodation

**Author(s):** Whitefoot, H.; Charman, W.N.

**Author Affiliation:** Dept. of Optometry & Vision Sci., Univ. of Manchester Inst. of Sci. & Technol., UK

**Journal:** Ophthalmic & Physiological Optics vol.12, no.1 p.8-17

**Publication Date:** Jan. 1992 **Country of Publication:** UK

**CODEN:** OPOPDS **ISSN:** 0275-5408

**U.S. Copyright Clearance Center Code:** 0275-5408/92/010008-10\$3.00

**Language:** English **Document Type:** Journal Paper (JP)

**Treatment:** Experimental (X)

**Abstract:** The added positive lens power required for low and high neutrals at a distance of 1/3 m is determined as a function of age for a sample of 221 clinically normal subjects, aged between 10 and 80 years. These dynamic retinoscopy results are compared with corresponding **laser** optometer measurements of the levels of accommodation under each condition. Dark focus (tonic accommodation) measurements are carried out on a further sample of 58 subjects. Although the mean results of dynamic retinoscopy agree with those found by earlier authors, on the basis of the present authors' sample it is concluded that the considerable scatter in neutral values found in normal subjects at any age limits the usefulness of the technique as an indication of abnormality in near responses. Much of this scatter in pre-**presbyopic** subjects appears to be related to individual variation in the level of tonic accommodation, although near phoria may also play some role. (47 Refs)

Subfile: A

4/7/6 (Item 1 from file: 5)

DIALOG(R) File 5:Biosis Previews(R)

(c) 2001 BIOSIS. All rts. reserv.

13063111 BIOSIS NO.: 200100270260

**Laser mediated treatments for presbyopia and hyperopia.**

**AUTHOR:** Shadduck John H



JOURNAL: Official Gazette of the United States Patent and Trademark Office  
Patents 1241 (3):pNo Pagination Dec. 19, 2000  
MEDIUM: e-file  
ISSN: 0098-1133  
DOCUMENT TYPE: Patent  
RECORD TYPE: Abstract  
LANGUAGE: English

ABSTRACT: A technique relating to orthokeratology for correcting presbyopic and hyperopic errors by means of a shallow-plane photo-microwelded intralamellar band. The technique is non-contact and is intended to be micro-invasive to allow its frequent repetition as a maintenance therapy. Non-contact photonic energy and a cyro-energy systems are provided in combination for creating an "inverse" thermal gradient in the anterior cornea. A computer-controlled spatial application system is provided for very high speed scanning of a photonic beam over the cornea. A "prosthetic" lens maintains the corneal surface in an optimal condition and prolate curvature. The lens-prosthesis further is adapted to mediate cryo- and photonic energies that propagate through the cornea to create the desired shallow-plane microweld effects.

4/7/7 (Item 2 from file: 5)  
DIALOG(R) File 5:Biosis Previews(R)  
(c) 2001 BIOSIS. All rts. reserv.

13047639 BIOSIS NO.: 200100254788  
**Correction of presbyopia with the excimer laser.**  
AUTHOR: Epstein Daniel(a); Vinciguerra Paolo; Frueh Beatrice E  
AUTHOR ADDRESS: (a)Department of Ophthalmology, University of Zurich,  
Frauenklinikstr 24, Zurich, 8091\*\*Switzerland  
JOURNAL: International Ophthalmology Clinics 41 (2):p103-111 Spring, 2001  
MEDIUM: print  
ISSN: 0020-8167  
DOCUMENT TYPE: Literature Review  
RECORD TYPE: Citation  
LANGUAGE: English  
SUMMARY LANGUAGE: English

4/7/8 (Item 3 from file: 5)  
DIALOG(R) File 5:Biosis Previews(R)  
(c) 2001 BIOSIS. All rts. reserv.

12658790 BIOSIS NO.: 200000412292  
**Refractive lensectomy for hyperopia.**  
AUTHOR: Fink Andrew M(a); Gore Christa; Rosen Emanuel S  
AUTHOR ADDRESS: (a)Goldschleger Eye Department, Sheba Hospital, Tel  
Hashomer\*\*Israel  
JOURNAL: Ophthalmology 107 (8):p1540-1548 August, 2000  
MEDIUM: print  
ISSN: 0161-6420  
DOCUMENT TYPE: Article  
RECORD TYPE: Abstract  
LANGUAGE: English  
SUMMARY LANGUAGE: English

ABSTRACT: Purpose: The purpose of this study was to evaluate refractive lensectomy as a surgical procedure for the treatment of hyperopia. Design: A retrospective noncomparative case series. Participants: Twenty-nine patients were included in the study. Fifty eyes underwent extraction of the crystalline lens and intraocular lens implantation. Methods: Operations were performed by the same surgeon with the patient under general anesthetic. All lenses were removed by phacoemulsification with insertion of lens implants singly or as piggyback lenses. The Holladay2 formula was used to calculate lens powers. Results are compared

with other methods of treating hyperopia. Main Outcome Measures: The main parameters assessed were safety, efficacy, predictability, stability, and complications. Results: Eyes were divided into group A (n = 26), with an average preoperative spherical equivalent (SE) of +2.26  $\pm$  0.94, and group B (n = 24), with an average preoperative SE of +6.32  $\pm$  1.32. In group A, after refractive lensectomy, 80.7% had no change in best-corrected visual acuity (BCVA) or gained a line, whereas 11.5% lost one line; 88.5% had an uncorrected visual acuity (UCVA) of 20/40 or better, and 88.5% were within 1 diopter (D) of intended postoperative SE. In group B, 70.9% of eyes had no change or gained a line in BCVA, whereas 29.2% lost a line of BCVA; 62.5% had UCVA of 20/40 or better postoperatively, and 58.3% were within 1 D of the intended SE. In one eye the posterior capsule was breached intraoperatively. One eye had a symptomatic episode of cystoid macula edema that settled spontaneously. To date, seven eyes have required secondary refractive procedures, and three eyes have required yttrium-aluminum-garnet capsulotomy. Conclusions: In the **presbyopic** age group refractive lensectomy may be a realistic alternative to photorefractive keratectomy or **laser** in situ keratomileusis, with certain potential advantages.

4/7/9 (Item 4 from file: 5)

DIALOG(R)File 5:Biosis Previews(R)  
(c) 2001 BIOSIS. All rts. reserv.

11273516 BIOSIS NO.: 199800054848

**Presbyopia and the optical changes in the human crystalline lens with age.**

AUTHOR: Glasser Adrian(a); Campbell Melanie C W

AUTHOR ADDRESS: (a)Dep. Ophthalmol. Visual Sci., Univ. Wisconsin-Madison,  
600 Highland Ave., Madison, WI 53792-3200\*\*USA

JOURNAL: Vision Research 38 (2):p209-229 Jan., 1998

ISSN: 0042-6989

DOCUMENT TYPE: Article

RECORD TYPE: Abstract

LANGUAGE: English

ABSTRACT: Lenses from 27 human eyes ranging in age from 10 to 87 years were used to determine how accommodation and age affect the optical properties of the lens. A scanning **laser** technique was used to measure focal length and spherical aberration of the lenses, while the lenses were subjected to stretching forces applied through the ciliary body/zonular complex. The focal length of all unstretched lenses increased linearly with increasing age. Younger lenses were able to undergo significant changes in focal length with stretching, whereas lenses older than 60 years of age showed no changes in focal length with stretching. These data provide additional evidence for predominantly lens-based theories of **presbyopia**. Further, these results show that there are substantial optical changes in the human lens with increasing age and during accommodation, since both the magnitude and the sign of the spherical aberration change with age and stretching. These results show that the optical properties of the older **presbyopic** lens are quite different from the younger, accommodated lens.

4/7/10 (Item 5 from file: 5)

DIALOG(R)File 5:Biosis Previews(R)  
(c) 2001 BIOSIS. All rts. reserv.

09646981 BIOSIS NO.: 199598101899

**Laser correction of hyperopia and presbyopia.**

AUTHOR: Anschuetz Till

AUTHOR ADDRESS: Konrad-Adenauer-Str. 3, 76571 Gaggenau\*\*Germany

JOURNAL: International Ophthalmology Clinics 34 (4):p107-137 1994

ISSN: 0020-8167

DOCUMENT TYPE: Article

RECORD TYPE: Citation

LANGUAGE: English

4/7/11 (Item 6 from file: 5)  
DIALOG(R)File 5:Biosis Previews(R)  
(c) 2001 BIOSIS. All rts. reserv.

09223353 BIOSIS NO.: 199497231723

**Refractive changes induced by electrocautery of the rabbit anterior lens capsule.**

AUTHOR: Jungschaffer Dana A; Saber Essam; Zimmerman Kerry M; McDonnell Peter J; Feldon Steven E(a)

AUTHOR ADDRESS: (a)Doheny Eye Inst., 1450 San Pablo St., Los Angeles, CA 90033\*\*USA

JOURNAL: Journal of Cataract and Refractive Surgery 20 (2):p132-137 1994

ISSN: 0886-3350

DOCUMENT TYPE: Article

RECORD TYPE: Abstract

LANGUAGE: English

ABSTRACT: The pathologic basis for **presbyopia** is classically attributed to lenticular sclerosis or atrophy of the ciliary muscle, but recent work suggests that thickening and loss of elasticity of the anterior lens capsule play an important role. As no practical means for attenuating or reversing the aging process of lens protein has been identified, alteration of the lens capsule eventually might prove to be a desirable alternative to spectacle correction in **presbyopic** individuals. This paper describes changes in the refractive properties of the lens resulting from alteration of the anterior lens capsule by application of focal cautery, using both an in vitro, in situ and an in vivo rabbit model. In vitro thermal treatment (electrocautery) of the capsule significantly increased the anterior curvature of the lens by an average of +2.95 diopters. Histologic examination of the treated lenses showed thinning of the capsule in the treated areas, as well as focal vacuolar degeneration in the lens substance beneath the lesions. In vivo thermal treatment of eyes induced a significant shift toward myopia, compared with control eyes. The accommodative range increased post-treatment relative to the controls, but the effect diminished over time, stabilizing near baseline at two to three weeks after treatment. Histologic examination showed localized changes but no signs of diffuse cataract formation. We conclude that the anterior capsule may play a significant role in the refractive power and accommodative changes in the crystalline lens. With further study of short-term and long-term effects and with development of noninvasive **laser** techniques, thermal treatment of the anterior lens capsule might eventually become a practical method of managing hyperopia and loss of accommodation in patients with advanced **presbyopia** .

4/7/12 (Item 7 from file: 5)  
DIALOG(R)File 5:Biosis Previews(R)  
(c) 2001 BIOSIS. All rts. reserv.

08339528 BIOSIS NO.: 000094090776

**MULTIFOCAL CORNEAL TOPOGRAPHIC CHANGES WITH EXCIMER LASER PHOTOREFRACTIVE KERATECTOMY**

AUTHOR: MOREIRA H; GARBUS J J; FASANO A; LEE M; CLAPHAM T N; MCDONNELL P J

AUTHOR ADDRESS: DOHENY EYE INSTITUTE, 1355 SAN PABLO ST., LOS ANGELES, CALIF. 90033.

JOURNAL: ARCH OPHTHALMOL 110 (7). 1992. 994-999. 1992

FULL JOURNAL NAME: Archives of Ophthalmology

CODEN: AROPA

RECORD TYPE: Abstract

LANGUAGE: ENGLISH

ABSTRACT: Excimer **laser** photorefractive keratectomy can flatten the

central cornea, thereby eliminating myopic refractive errors; in older patients, however, **presbyopia** limits satisfaction. Computer-assisted topographic analysis of corneas after refractive surgery indicates that a minority of patients achieve a multifocal lens effect, such that they maintain reasonable acuity over a range of defocus. We have purposefully attempted to create a multifocal refractive effect and have analyzed the subsequent topographies quantitatively to determine if multifocality was achieved. In corneas not operated on and plastic hemispheres, a fairly small range of corneal powers is observed; the range of powers is increased after a monofocal ablation. After multifocal ablations, a greater spread of surface powers is observed, often with a bimodal distribution, indicative of an apparent multifocal effect. These observations suggest that in some patients undergoing photorefractive keratectomy for myopia, it may be possible to reduce symptoms of presbyopia, although a decrease in image contrast or monocular diplopia may complicate this approach.

4/7/13 (Item 8 from file: 5)  
DIALOG(R) File 5: Biosis Previews(R)  
(c) 2001 BIOSIS. All rts. reserv.

07734539 BIOSIS NO.: 000092059170

**LENS OPTICAL QUALITY IS A DIRECT FUNCTION OF LENS SUTURAL ARCHITECTURE**

AUTHOR: KUSZAK J R; SIVAK J G; WEERHEIM J A

AUTHOR ADDRESS: DEP. PATHOL., RUSH-PRESBYTERIAN-ST. LUKE'S MED. CENT., 1653 WEST CONGRESS PARKWAY, CHICAGO, ILL. 60612.

JOURNAL: INVEST OPHTHALMOL VISUAL SCI 32 (7). 1991. 2119-2129. 1991

FULL JOURNAL NAME: Investigative Ophthalmology & Visual Science

CODEN: IOVSD

RECORD TYPE: Abstract

LANGUAGE: ENGLISH

**ABSTRACT:** We analyzed the structural and functional relationship between lens sutures and lens optical quality (focal length variability) by correlative scanning electron microscopy (SEM) and **laser** scan analysis. Twenty-two rabbit lenses (8 pigmented and 14 albino) were used in this study. Lenses were initially scanned by a low-power helium-neon **laser** beam that was passed either at an acute angle to a lens suture or along a lens suture. The results of **laser** scan analysis with the incident beam passed at an acute angle to a lens suture showed that generally, rabbit lenses were well corrected for spherical aberration. Subsequent SEM analysis showed that areas of lenses scanned that produced the least amount of focal variability were characterized by uniform fiber cells arranged in parallel, radial cell columns. In contrast, the results of **laser** scan analysis with the incident beam passed along a lens suture showed that there was significant focal length variability, i.e., spherical aberration at the lens sutures. Subsequent SEM analysis showed that the areas of lenses scanned that produced the greatest amounts of focal variability (lens sutures) were characterized by nonuniform fiber cell ends arranged as erratic suture branches in single growth shells and collectively as erratic suture planes formed between growth shells extending from the embryonic nucleus to the lens periphery. Furthermore, the amount of focal variability was directly proportional to the degree of structural disorder at the lens sutures. This is the first study to unequivocally show that the relationship between lens optical quality and specific parameters of lens morphology (lens sutures) can be quantified. These findings may help to elucidate the pathologic changes that lead to **presbyopia** and cortical cataractogenesis because these lenses are characterized by asymmetrical suture patterns and planes.

4/7/14 (Item 1 from file: 8)  
DIALOG(R) File 8: Ei Compendex(R)  
(c) 2001 Engineering Info. Inc. All rts. reserv.

04293376 E.I. No: EIP95122936648

**Title: How predictable are the results of excimer laser photorefractive keratectomy? A review**

Author: Grosvenor, Theodore

Corporate Source: Indiana Univ, Bloomington, IN, USA

Source: Optometry and Vision Science v 72 n 10 Oct 1995. p 698-712

Publication Year: 1995

CODEN: OVSCET ISSN: 1040-5488

Language: English

Document Type: JA; (Journal Article) Treatment: A; (Applications); G; (General Review)

Journal Announcement: 9601W4

**Abstract:** This paper reviews the literature concerning the results of excimer **laser** photorefractive keratectomy (PRK), to evaluate its predictability in terms of residual refractive error and visual acuity. It also evaluates the results of PRK in terms of visual problems other than reduced high-contrast 'refracting room' visual acuity, complaints of halos and glare, and night-vision problems including difficulty with night driving. As compared to radial keratectomy in which the postoperative refractive error drifts relentlessly in the hyperopic direction, PRK brings about an initial shift followed by regression leading to increasing myopia. Although it is yet early to determine whether the myopic creep in PRK will be as persistent as the hyperopic creep in RK, it is found likely that **presbyopic** post-PRK patients may be sufficiently myopic to require lenses for distance vision but not for reading. 55 Refs.

4/7/15 (Item 1 from file: 34)

DIALOG(R) File 34:SciSearch(R) Cited Ref Sci

(c) 2001 Inst for Sci Info. All rts. reserv.

07413895 Genuine Article#: 162PY Number of References: 11

**Title: Centered vs. inferior off-center ablation to correct hyperopia and presbyopia**

Author(s): Bauerberg JM (REPRINT)

Corporate Source: PARAGUAY 1432,5P 1061/BUENOS AIRES/DF/ARGENTINA/

(REPRINT); HOSP ISRAELITA EZRAH, DEPT OPHTHALMOL/BUENOS

AIRES/DF/ARGENTINA/

Journal: JOURNAL OF REFRACTIVE SURGERY, 1999, V15, N1 (JAN-FEB), P66-69

Publication date: 19990100

Publisher: SLACK INC, 6900 GROVE RD, THOROFARE, NJ 08086

Language: English Document Type: ARTICLE

**Abstract:** BACKGROUND: We describe a new technique of inferior off-center ablation with **laser** in situ keratomileusis (LASIK) to correct both hyperopia and **presbyopia** .

**METHODS:** This prospective clinical study was based on the empirical results obtained with LASIK in 16 hyperopic eyes of 8 patients. All patients had a centered ablation in one eye and an inferior decentered ablation in the other eye. A Schwind excimer laser was used and a planned inferior off-center ablation of 1mm was performed. Maximum follow-up was 22 months (8 eyes).

**RESULTS:** Patients with hyperopia that underwent inferior decentered ablation were able to read for a prolonged period of time, compared with eyes that had conventional centered excimer laser ablation. Patients with steepened corneas in the inferior and eccentric zone ended up not only with better distance but also better near vision. No loss of spectacle-corrected visual acuity in any eye has been observed to date.

**CONCLUSION:** Planned inferior off-center ablation to correct hyperopia and presbyopia achieved better distance and near visual acuity than centered ablation. As with centered ablation, no significant regression of effect occurred with off-center ablation; reading near vision was better and more stable with inferior off-center ablation.

4/7/16 (Item 2 from file: 34)

DIALOG(R)File 34:SciSearch(R) Cited Ref Sci  
(c) 2001 Inst for Sci Info. All rts. reserv.

06662218 Genuine Article#: ZJ358 Number of References: 3

**Title: Zonal photorefractive keratectomy for presbyopia**

Author(s): Vinciguerra P (REPRINT) ; Nizzola GM; Nizzola F; Ascari A;  
Azzolini M; Epstein D

Corporate Source: VIA RIPAMONTI,205/I-20141 MILAN//ITALY/ (REPRINT); OSPED  
SAN GERARDO,DIV OCULIST/MONZA/MI/ITALY/

Journal: JOURNAL OF REFRACTIVE SURGERY, 1998, V14, N2,S (APR), PS218-S221

Publication date: 19980400

Publisher: SLACK INC, 6900 GROVE RD, THOROFARE, NJ 08086

Language: English Document Type: ARTICLE

Abstract: PURPOSE: We performed zonal excimer **laser** photorefractive  
keratectomy in three eyes of three **presbyopic** patients using a  
specially designed mask, with a minimum follow-up of 24 months.

METHODS: Two females (ages 59 and 48) and one male (age 55) were  
included in the study. The procedure was performed with a mask designed  
by one of the authors (GMN), applied to the Aesculap-Meditec Mel 60  
excimer **laser**. The mask consists of a mobile diaphragm formed by two  
blunt blades. The aim in all the eyes was a **presbyopic** correction of  
3.00 D.

RESULTS: After an initial regression of 1.00 D, the presbyopic  
correction remained stable during the 36-month follow-up. The patients  
read at least J3 at normal reading distance without correction. Since  
the ablated zone was only about 15% of the total area of a 3.0 mm  
pupil, all three patients were also able to read with their  
preoperative presbyopic correction (using the untreated 85% of the  
pupillary area).

CONCLUSION: Although only three eyes were treated with the zonal  
presbyopia mask presented here, the visual and refractive outcome  
appears promising in view of the relatively long follow-up time.

4/7/17 (Item 3 from file: 34)

DIALOG(R)File 34:SciSearch(R) Cited Ref Sci  
(c) 2001 Inst for Sci Info. All rts. reserv.

06653355 Genuine Article#: ZH624 Number of References: 40

**Title: Novel approaches to correction of presbyopia with laser  
modification of the crystalline lens**

Author(s): Myers RI (REPRINT) ; Krueger RR

Corporate Source: UNIV MISSOURI,SCH OPTOMETRY, 8001 NAT BRDGE/ST  
LOUIS//MO/63121 (REPRINT); ST LOUIS UNIV,INST EYE/ST LOUIS//MO/63103

Journal: JOURNAL OF REFRACTIVE SURGERY, 1998, V14, N2 (MAR-APR), P136-139

Publication date: 19980300

Publisher: SLACK INC, 6900 GROVE RD, THOROFARE, NJ 08086

Language: English Document Type: ARTICLE

4/7/18 (Item 4 from file: 34)

DIALOG(R)File 34:SciSearch(R) Cited Ref Sci  
(c) 2001 Inst for Sci Info. All rts. reserv.

06557191 Genuine Article#: ZB157 Number of References: 6

**Title: Excimer laser photorefractive keratectomy for presbyopia:  
24-month follow-up in three eyes**

Author(s): Vinciguerra P (REPRINT) ; Nizzola GM; Bailo G; Nizzola F; Ascari  
A; Epstein D

Corporate Source: V RIPAMONTI 205,/I-20141 MILAN//ITALY/ (REPRINT); S  
GERARDO HOSP,INST BIOMED SCI/MONZA/MI/ITALY/; HESPERIA HOSP,AMBULATORIO

OCULIST DOTTOR GUIDA MARIA NIZZOLA/MODENA//ITALY//; UNIV UPPSALA  
HOSP,DEPT OPHTHALMOL/UPPSALA//SWEDEN/

Journal: JOURNAL OF REFRACTIVE SURGERY, 1998, V14, N1 (JAN-FEB), P31-37

Publication date: 19980100

Publisher: SLACK INC, 6900 GROVE RD, THOROFARE, NJ 08086

Language: English Document Type: ARTICLE

Abstract: BACKGROUND: For some patients, standard optical correction for **presbyopia** is not satisfactory. Using a specially designed mask, we developed a procedure for correcting **presbyopia** with excimer laser photorefractive keratectomy (PRR).

METHODS: A mask consisting of a mobile diaphragm formed by two blunt blades was used to ablate a 10 to 17  $\mu$ m deep semilunar-shaped zone immediately below the pupillary center, steepening the corneal curvature in that area. Three eyes of three presbyopic patients were treated, aiming at a near addition of +3.00 D. Follow-up time was 24 months.

RESULTS: After an initial regression of 1.00 D during the first 6 months, the presbyopic correction remained stable for the duration of the follow-up period, enabling uncorrected near vision of 53 in all three eyes. Uncorrected distance visual acuity was not altered. Contrast sensitivity (Regan) was slightly decreased only at the 11% level. Videokeratography confirmed corneal steepening in the ablated area.

CONCLUSION: The visual and refractive outcome of excimer laser PRK for **presbyopia** with the Aesculap-Meditec MEL 60 is promising, especially in view of the 2-year follow-up.

4/7/19 (Item 5 from file: 34)

DIALOG(R)File 34:SciSearch(R) Cited Ref Sci  
(c) 2001 Inst for Sci Info. All rts. reserv.

04092813 Genuine Article#: RD943 Number of References: 27

Title: IN-VITRO CHANGES IN BACK VERTEX DISTANCE OF CHICK AND PIGEON LENSES  
- SPECIES-DIFFERENCES AND THE EFFECTS OF AGING

Author(s): GLASSER A; HOWLAND HC

Corporate Source: UNIV WATERLOO,SCH OPTOMETRY/WATERLOO/ON N2L 3G1/CANADA/;  
CORNELL UNIV,PHYSIOL SECT/ITHACA//NY/14853; CORNELL UNIV,NEUROBIOL &  
BEHAV SECT/ITHACA//NY/14853

Journal: VISION RESEARCH, 1995, V35, N13 (JUL), P1813-1824

ISSN: 0042-6989

Language: ENGLISH Document Type: ARTICLE

Abstract: We have used a scanning laser technique to measure in vitro changes in back vertex distance of chick and pigeon lenses. Enucleated eyes were dissected, leaving the lens naturally suspended by the ciliary body and intraocular muscles. Ray tracing techniques were used to measure the resting back vertex distance of the lenses by passing a laser beam through the lens and scanning it across the pupillary aperture. The pupil diameter was measured videographically. The measurements were repeated while the intraocular muscles were pharmacologically stimulated with increasing concentrations of either nicotine or carbachol. Drug stimulation caused changes in pupil diameter and changes in the back vertex distance of the lenses. These experiments were conducted on the eyes of young chicks, young pigeons, and on the eyes of three pigeons older than 10 yr. The lenses from the eyes of the old pigeons had the greatest resting back vertex distance, followed by those of the young pigeons and finally those of the young chicks. Lenses from the eyes of young chicks and young pigeons underwent similar drug-induced changes in back vertex distance, but the lenses from old pigeon eyes showed an almost complete absence of such changes. Further, we demonstrated that, just as in the chick eye, lenticular changes in pigeon eyes are due to a contraction of the iris muscle. This is evident because after the iris has been removed the

lens undergoes no change in back vertex distance during stimulation. We conclude with a discussion of the lenticular accommodative ability of the pigeon eye with reference to the recently reported accommodative mechanism of the chick eye and a comparison of chick and pigeon iris morphology.

**4/7/20 (Item 1 from file: 73)**

DIALOG(R) File 73:EMBASE

(c) 2001 Elsevier Science B.V. All rts. reserv.

10730084 EMBASE No: 2000139520

**Refractive surgery for hyperopia**

Pershin K.B.; Pashinova N.F.

Dr. K.B. Pershin, Marksistskaya Str., Moscow 109147 Russian Federation

AUTHOR EMAIL: excimer@dialup.ptt.ru

Journal of Refractive Surgery ( J. REFRACTIVE SURG. ) (United States)

2000, 16/2 SUPPL. (S242-S246)

CODEN: JRSUF ISSN: 1081-597X

DOCUMENT TYPE: Journal; Conference Paper

LANGUAGE: ENGLISH SUMMARY LANGUAGE: ENGLISH

NUMBER OF REFERENCES: 19

PURPOSE: To determine the efficacy, stability, and predictability of refractive surgery for hyperopia using four different procedures: photorefractive keratectomy (PRK), **laser** in situ keratomileusis (LASIK), implantation of a phakic intraocular lens (PIOL), and removing the transparent lens with IOL implantation. METHODS: We operated on 184 eyes with hyperopia; 56 eyes had less than +2.00 D (low hyperopia), 62 eyes had +2.00 to +5.00 D (moderate hyperopia), and 66 eyes had greater than +5.00 D (high hyperopia). In the low hyperopia group, PRK was used in 22 eyes and LASIK in 34 eyes. In the moderate hyperopia group, PRK was used in 12 eyes and LASIK in 33 eyes, PIOL implantation in 12 eyes, and transparent lens extraction with IOL implantation in 5 eyes. In the high hyperopia group, PRK was used in 7 eyes, LASIK in 12 eyes, PIOL implantation in 21 eyes, and extraction of transparent lens with IOL implantation in 26 eyes. We used the Nidek EC-5000 excimer **laser** and with the Moria LASIK Evolution microkeratome. The transparent lens was removed by phacoemulsification, and the Phacoprofile Storz IOL with optical power from 28.00 to 36.00 D was implanted. The PIOLs were made of a collagen copolymer with a focal power from +6.00 to +12.00 D. RESULTS AND CONCLUSION: Refraction and visual results depended on amount of baseline hyperopia and age of the patient. For young patients (35 years old or less) with normal accommodation and low or moderate hyperopia, PRK and LASIK were our methods of choice. However, after LASIK, stabilization of refraction occurred faster (3 to 12 weeks) compared to PRK, where changes in refraction were noted from 8 to 12 months after surgery. In patients with hyperopia more than +5.00 D, we prefer intraocular methods of correction: phakic IOL implantation for young patients and removing the transparent lens with IOL implantation in patients with **presbyopia** or anatomical tendency for development of close-dangle glaucoma.

**4/7/21 (Item 2 from file: 73)**

DIALOG(R) File 73:EMBASE

(c) 2001 Elsevier Science B.V. All rts. reserv.

10730058 EMBASE No: 2000139494

**One-year results of laser vision correction for low to moderate hyperopia**

Williams D.K.; McRae S.

D.K. Williams, LaserVision Centres, 22 Harley Street, London W1N 2AP  
United Kingdom

Ophthalmology ( OPHTHALMOLOGY ) (United States) 2000, 107/1 (72-75)

CODEN: OPHTD ISSN: 0161-6420

PUBLISHER ITEM IDENTIFIER: S0161642099000287

DOCUMENT TYPE: Journal; Article



LANGUAGE: ENGLISH SUMMARY LANGUAGE: ENGLISH  
NUMBER OF REFERENCES: 5

**Objective:** To assess the efficacy and safety of hyperopic **laser** vision correction using a refined ablation architecture and the VISX STAR Excimer **Laser**. **Design:** Prospective noncomparative case series. **Participants:** Fifty- two eyes with hyperopia from +1 to +6 diopters (D) spherical equivalent (SE) with or without cylinder  $\leq 1.5$  D based on cycloplegic refraction. Hyperopia was primary or caused by prior overcorrection of myopia. **Intervention:** Hyperopic **laser** vision correction using a 9 mm/5 mm ablation profile and a pulse rate of 10 Hz. We prescribed ciprofloxacin and fluorometholone four times a day for 1 week. **Main Outcome Measures:** SE; uncorrected visual acuity (UCVA); predictability within  $\pm 0.5$  D,  $\pm 1.0$  D, and  $\pm 2.0$  D of target refraction (emmetropia); loss of best-corrected visual acuity (BCVA); haze, and all complications at 1, 3, 6, and 12 months. **Results:** We treated 52 eyes (mean preoperative SE; +3.03 D). Forty-one eyes (78.8%) had primary hyperopia. At 3, 6, and 12 months, 66%, 67%, and 79% of all eyes had refraction within  $\pm 0.5$  D of emmetropia. At these same intervals, 83%, 88%, and 79% were within  $\pm 1.0$  D of emmetropia. At 12 months, all eyes were within  $\pm 2.0$  D. At 3 months, 85.4% of eyes had UCVA of 20/40 or better, with 95.3% achieving 20/40 or better at 6 months. At 1 year, all eyes ( $n = 19$ ) had gained from 1 to 8 Snellen lines of UCVA, with most ( $n = 16$ ) gaining between 3 and 7 lines. At 12 months, all eyes maintained preoperative BCVA or gained 1 to 4 lines. There was some early, transient haze  $\leq$  grade 1.5. There were no corneal infiltrates, decentered ablations, or infections. **Conclusions:** These data suggest that the 9 mm/5 mm hyperopic ablation profile of the VISX STAR can produce accurate corrections without significant, progressive regression. Refractive stability was achieved 3 months after surgery. We did not observe any differences in outcomes between eyes treated for primary hyperopia and eyes treated for prior myopic overcorrections. We believe the quicker ablation time (10 Hz pulse rate) helped patients maintain fixation and reduced the risk of decentration. There was a high degree of satisfaction among all patients, especially those with **presbyopia**. (C) 2000 by the American Academy of Ophthalmology.

4/7/22 (Item 3 from file: 73)  
DIALOG(R) File 73:EMBASE  
(c) 2001 Elsevier Science B.V. All rts. reserv.

07782371 EMBASE No: 1999265759

**Refractive surgery in the 21st century**

Letheren C.A.

Dr. C.A. Letheren, 420-171 Queens Avenue, London, Ont. N6A 5J7 Canada  
Practical Optometry ( PRACT. OPTOM. ) (Canada) 1999, 10/3 (108-114+126)

CODEN: PROPF ISSN: 1181-6058

DOCUMENT TYPE: Journal; Article

LANGUAGE: ENGLISH SUMMARY LANGUAGE: ENGLISH

NUMBER OF REFERENCES: 35

Current refractive surgery techniques include radial keratotomy (RK), astigmatic keratotomy (AK), photorefractive keratectomy (PRK), and **laser**, assisted in situ keratomileusis (LASIK). Most of the current techniques involve the treatment of low to moderate myopia and astigmatism. As we approach the 21st century, new types of **lasers** and ablation methods are being designed. New scanning excimer hyperopic software has made it possible to offer LASIK to patients up to +6.00 diopters (D) with reasonable accuracy. Holmium:YAG **laser** thermal keratoplasty (LTK) also has a place in the refractive surgery market with success for low hyperopic and **presbyopic** patients. Non-**laser** oriented therapies are currently in clinical trials in Canada and the United States. These include intracorneal rings (ICRs), phakic intraocular contact lenses (ICLs), and anterior ciliary sclerotomy (ACS). These more recent techniques are reviewed and their advantages and disadvantages are discussed.

4/7/23 (Item 4 from file: 73)  
DIALOG(R) File 73:EMBASE  
(c) 2001 Elsevier Science B.V. All rts. reserv.

07701502 EMBASE No: 1999185812

**Clear lens extraction with intraocular lens implantation for hyperopia**  
Kolahdouz-Isfahani A.H.; Rostamian K.; Wallace D.; Salz J.J.  
Dr. A.H. Kolahdouz-Isfahani, Coleman Clinic, Ltd, 175 South Main Street,  
Canton, IL 61520 United States  
Journal of Refractive Surgery ( J. REFRACTIVE SURG. ) (United States)  
1999, 15/3 (316-323)  
CODEN: JRSUF ISSN: 1081-597X  
DOCUMENT TYPE: Journal; Article  
LANGUAGE: ENGLISH SUMMARY LANGUAGE: ENGLISH  
NUMBER OF REFERENCES: 18

**PURPOSE:** Current surgical options for the correction of moderate to severe hyperopia include hyperopic **laser** in situ keratomileusis (LASIK), phakic intraocular lens implantation and clear lens extraction with intraocular lens (IOL) implantation. We investigate the safety and efficacy of clear lens extraction with IOL implantation to correct hyperopia. **METHODS:** Phacoemulsification and IOL implantation was performed on 18 eyes of 10 patients. In 16 eyes, the Hoffer-Q formula was used for IOL power calculation and a single IOL was inserted; in the remaining 2 nanophthalmic eyes, the Holladay-II formula was used and two piggy-back IOLs were inserted. **RESULTS:** Mean preoperative spherical equivalent for distance was +6.17 D (range, +4.25 to +9.62 D). Patients were followed postoperatively for a mean of 10.5 months (range, 4 to 27 mo). Uncorrected visual acuity in all eyes was 20/50 or better with a median uncorrected visual acuity of 20/40 (range, 20/30 to 20/50). Two patients lost 2 lines of spectacle-corrected visual acuity; both of these patients achieved spectacle-corrected visual acuity of 20/30. **CONCLUSIONS:** Clear lens extraction with IOL implantation is a safe and effective procedure for the correction of moderate to severe hyperopia in the **presbyopic** age range.

4/7/24 (Item 5 from file: 73)  
DIALOG(R) File 73:EMBASE  
(c) 2001 Elsevier Science B.V. All rts. reserv.

06708791 EMBASE No: 1996373744

**Excimer laser in situ keratomileusis**  
Slade S.G.; Doane J.F.  
Laser Center, 3900 Essex, Houston, TX United States  
Seminars in Ophthalmology ( SEMIN. OPHTHALMOL. ) (United States) 1996,  
11/4 (248-258)  
CODEN: SEOPE ISSN: 0882-0538  
DOCUMENT TYPE: Journal; Conference Paper  
LANGUAGE: ENGLISH SUMMARY LANGUAGE: ENGLISH

**Excimer laser** in situ keratomileusis (LASIK) is the most recent evolution of the family of lamellar refractive surgery, which includes keratophakia, freeze myopic keratomileusis, epikeratoplasty, keratomileusis in situ, and Buratto-style excimer **laser** keratomileusis. LASIK is the marriage of the microkeratome, with its ability to resect a plano lamellar disc of corneal tissue, and the precision of the argon-fluoride excimer **laser**, operating at 193 nm to remove submicron layers of corneal stroma to achieve a highly predictable refractive result. Myopia, astigmatism, hyperopia, **presbyopia**, and complex ablations for abnormal topography have been attempted. Although LASIK as a technique is relatively young, the early results are very encouraging. Investigators worldwide are vigorously investigating its efficacy, predictability, stability, and safety.

4/7/25 (Item 6 from file: 73)

DIALOG(R)File 73:EMBASE  
(c) 2001 Elsevier Science B.V. All rts. reserv.

06177966 EMBASE No: 1995213987

**Stereopsis and accommodation following photorefractive keratectomy (PRK) for myopia**

Algawi K.; Goggin M.; O'Keefe M.

Mater Private Hospital, Eccles Street, Dublin 7 Ireland

European Journal of Implant and Refractive Surgery ( EUR. J. IMPLANT REFRACTIVE SURG. ) (United Kingdom) 1995, 7/3 (150-153)

CODEN: EJISE ISSN: 0955-3681

DOCUMENT TYPE: Journal; Article

LANGUAGE: ENGLISH SUMMARY LANGUAGE: ENGLISH

**OBJECTIVE:** To study the effect of excimer laser photorefractive keratectomy (PRK) for myopia on accommodation and stereopsis. **STUDY DESIGN:** Myopes treated with Summit Technology UV 200 excimer laser PRK were followed prospectively for a mean period of 13 months (range, 9-16 months). **SETTING:** The Laser Unit of the Mater Private Hospital, Dublin, Republic of Ireland. **PATIENTS:** Twenty-one patients with a mean age of 25.95 years (range, 20-33 years) and a mean refractive error of -3.80 D (range, -1.50-6.00 D) underwent excimer laser PRK for myopia. Mean prelaser amplitude of accommodation (AA) was 10.0 D (range, 8-13). Mean prelaser near stereopsis was 52 second of arc (range, 40-140) and mean distant stereopsis was 143 second of arc (range, 30-240). **MAIN OUTCOMES MEASURES:** AA, near and distant stereopsis, accommodative convergence/accommodation (AC/A) ratio and ocular alignment were assessed preoperatively and at 3 and 12 months postoperatively. Nine of the 21 patients underwent PRK in their 2nd eye and had these measurements carried out 3 months following the 2nd treatment. Subjective complaints of asthenopic or presbyopic symptoms were recorded. **RESULTS:** No patients complained of asthenopic or presbyopic symptoms. Only 3 patients (14.28%) had asymptomatic persistent reduction of AA of  $\geq 2$  D (mean, 3 D). Near stereopsis was reduced by a mean of 88 seconds of arc in 11 patients (52.3%) at the 3 months visit (range, 10-360). Four of those affected (36.3%) regained their preoperative near stereopsis spontaneously by the end of the study follow-up period and 4 others (36.3%) 3 months following treatment of the 2nd eye. Distant stereopsis was reduced by a mean of 103 seconds of arc (range, 60-180) in 8 patients (38%). Only those who underwent PRK in the 2nd eye (3 patients) recovered their preoperative distant stereopsis. No change in AC/A ratio or ocular alignment was noted in any case. Significantly greater numbers of patients recovered distant stereopsis following treatment of the 2nd eye than recovered it spontaneously ( $P = 0.01$ , tailed value). There was no such significant difference for near stereopsis. **CONCLUSIONS:** Binocular function is disturbed in half those undergoing PRK for myopia for their 1st eye. Despite this, no patients complained of asthenopia or reduced binocular function. Treatment of the fellow eye restored near and distant stereopsis in all cases studied.

4/7/26 (Item 7 from file: 73)

DIALOG(R)File 73:EMBASE  
(c) 2001 Elsevier Science B.V. All rts. reserv.

02303836 EMBASE No: 1983234997

**High and low luminance acuity in relation to age**

L'AGE ET LES ACUITES VISUELLES PHOTOPIQUES ET MESOPIQUES

Vola J.L.; Cornu L.; Carruel C.; et al.

38 Rue J. Mermoz, F-13008 Marseille France

Journal Francais d'Ophtalmologie ( J. FR. OPHTALMOL. ) (France) 1983, 6/5 (473-479)

CODEN: JFOPD

DOCUMENT TYPE: Journal

LANGUAGE: FRENCH SUMMARY LANGUAGE: ENGLISH

Visual acuity at high luminance (100 cdm<sup>2</sup>) and at low luminance (0.8

cdm2) was measured in normal subjects aged between 20 and 50 years. A decrease of visual acuity at low luminance was noted with increasing age whereas high luminance acuity remained unchanged (20/20). At thirty years of age, low luminance visual acuity was an average of 20/30 decreasing at 40 years to 20/40. Results were confirmed by statistical analysis. A short study with interference fringes, formed by a coherent light (neon-helium **laser**) produced directly on the retina and thus by-passing optical effects on the eye, suggested that the retina-brain system was responsible for decreased mesopic visual acuity, night myopia or right **presbyopia** not playing any part in this decrease as suggested by some authors. Consequences of these findings, concerning particularly workers at low luminance such as pilots or drivers, are discussed.

4/7/27 (Item 1 from file: 155)

DIALOG(R) File 155:MEDLINE(R)

(c) format only 2001 Dialog Corporation. All rts. reserv.

10858904 20486589 PMID: 11031875

**[Characteristics of correction of myopia by photorefractive keratectomy in patients with presbyopia]**

Osobennosti korrektsii miopii s pomoshch'iu fotorefraktsionnoi keratoektomii u patsientov s presbiopiei.

Rudakova TE; Kurenkov VV; Polunin GS

Vestnik oftalmologii (RUSSIA) Jul-Aug 2000, 116 (4) p31-3, ISSN 0042-465X Journal Code: XAO

Languages: RUSSIAN

Document type: Journal Article

Record type: Completed

Photorefraction keratectomy was performed with a Nidek EC-5000 excimer **laser** in 29 patients (58 eyes) with slight and medium myopia aged 40-60 years. After 12 months the mean visual acuity in the leading eye without correction was 0.82 +/- 0.12 in patients aged 40-50 (group 1) and 0.76 +/- 0.11 in those aged 51-60 years (group 2). The mean refraction of the leading eye in group 1 was -0.97 +/- 0.02 diopters and in group 2 0.72 +/- 0.04 diopters. In group 1 the resultant undercorrection was -1.6 +/- 0.4 diopters (107% of planned undercorrection) and in group 2 -1.8 +/- 0.4 diopters (72% of planned undercorrection). The proposed method effectively corrects slight and medium myopia in patients of **presbyopia** age. 82% patients were satisfied with the results of treatment: 67% of them did not need eyeglasses for reading and 54% could drive a car without eyeglasses.

4/7/28 (Item 2 from file: 155)

DIALOG(R) File 155:MEDLINE(R)

(c) format only 2001 Dialog Corporation. All rts. reserv.

07159074 93332925 PMID: 8338819

**[The treatment of myopia by photoreactive keratectomy (PRK) with the 193-nm excimer laser]**

Tratamentul miopiei prin keratectomie fotorefractiva (KPR) cu laser excimer 193 nm.

Zolog N

Oftalmologia (ROMANIA) Jul-Sep 1993, 37 (3) p196-206, ISSN 1120-0875 Journal Code: AZ8

Languages: ROMANIAN

Document type: Journal Article; Review; Review, Tutorial

Record type: Completed

Excimer **laser** photokeratectomy is the most recent procedure used for correcting myopia surgically. It consist in flattening the cornea by performing ablations of a part of its anterior stroma. Over 15,000 patients underwent this almost entirely robotic surgical intervention, supposed not to present the shortcomings of radial keratotomy. This robotic surgery tend to replace radial keratotomy. Photokeratectomy is designed to correct all kinds of myopia, astigmatism as well as these resulting from such surgical interventions as cataract extraction or Keratoplasty. A bifocal

photorefractive keratectomy is expected to correct the myopia of the patients who reached the age of **presbyopia** . (24 Refs.)

4/7/29 (Item 3 from file: 155)

DIALOG(R) File 155:MEDLINE(R)

(c) format only 2001 Dialog Corporation. All rts. reserv.

07051276 93309859 PMID: 8321535

**Radial keratotomy for myopia. American Academy of Ophthalmology.**

Ophthalmology (UNITED STATES) Jul 1993, 100 (7) p1103-15, ISSN 0161-6420 Journal Code: OI5

Comment in Ophthalmology. 1993 Jul;100(7) 979-80

Languages: ENGLISH

Document type: Journal Article; Review; Review, Academic

Record type: Completed

The operation of radial keratotomy is undergoing evolution and development. A few hundred thousand radial keratotomy procedures have been performed during the past decade by approximately 10% of the ophthalmologists in the United States. Clinical and laboratory data have now defined a relative level of safety and effectiveness for the procedure. Published data indicate that radial keratotomy usually achieves partial improvement in uncorrected visual acuity in patients with non-progressive low and moderate amounts of myopia. Undercorrection occurs commonly, and the amount of correction cannot be predicted accurately for an individual patient. Overcorrection occurs less often using four incisions. The unpredictability of the refractive outcome stems from several factors, including: 1) the biologic variability from one individual to another, 2) variation in surgical techniques among surgeons, 3) difficulty in making all incisions uniformly, and 4) inability to measure and control the biomechanical properties of the cornea. This is probably why there is not unanimity among radial keratotomy surgeons regarding the most effective surgical technique. Improvements in the surgery are occurring, including the use of staged, titrated techniques, and some series of radial keratotomy cases have reported better uniformity and predictability of outcome. The potential of this procedure to render good visual acuity without glasses or contact lenses must be weighed against its known risks. Refractive side effects include anisometropia (imbalanced vision between the two eyes), increased astigmatism, and symptomatic **presbyopia** (loss of near focus in middle life). Other common, usually less severe side effects include prolonged unstable vision and mild glare. Uncommon, but potentially binding, complications include ocular infection and traumatic rupture of the cornea at the keratotomy scars. The goal of radial keratotomy is to correct the refractive error of myopia. It also may serve to improve cosmetic appearance if the patient does not require glasses after surgery. It is elective surgery because other alternatives are available for the management of myopia, including conventional glasses and contact lenses. In addition, other refractive keratoplasty procedures are available, including excimer **laser** photorefractive keratectomy, keratomileusis and epikeratoplasty. Selection of the best alternative for the management of myopia in an individual patient should be based on the patient's personal needs and on the ophthalmologist's and patient's assessment of the risks and benefits of the available modes of correction. (147 Refs.)

4/7/30 (Item 4 from file: 155)

DIALOG(R) File 155:MEDLINE(R)

(c) format only 2001 Dialog Corporation. All rts. reserv.

04511372 84033880 PMID: 6630887

**[Age and photopic and mesopic visual acuity]**

L'age et les acuites visuelles photopiques et mesopiques.

Vola JL; Cornu L; Carruel C; Gastaud P; Leid J

Journal francais d'ophtalmologie (FRANCE) 1983, 6 (5) p473-9, ISSN 0181-5512 Journal Code: IAE

Languages: FRENCH

Document type: Journal Article

Record type: Completed

Visual acuity at high luminance (100 cdm<sup>2</sup>) and at low luminance (0.8 cdm<sup>2</sup>) was measured in normal subjects aged between 20 and 50 years. A decrease of visual acuity at Low luminance was noted with increasing age whereas high luminance acuity remained unchanged (20/20). At thirty years of age, low luminance visual acuity was an average of 20/30 decreasing at 40 years to 20/40. Results were confirmed by statistical analysis. A short study with interference fringes, formed by a coherent light (neon-helium **laser** ) produced directly on the retina and thus by-passing optical effects on the eye, suggested that the retina-brain system was responsible for decreased mesopic visual acuity, night myopia or right **presbyopia** not playing any part in this decrease as suggested by some authors. Consequences of these findings, concerning particularly workers at low luminance such as pilots or drivers, are discussed.